

THE MILLING WORLD

AND

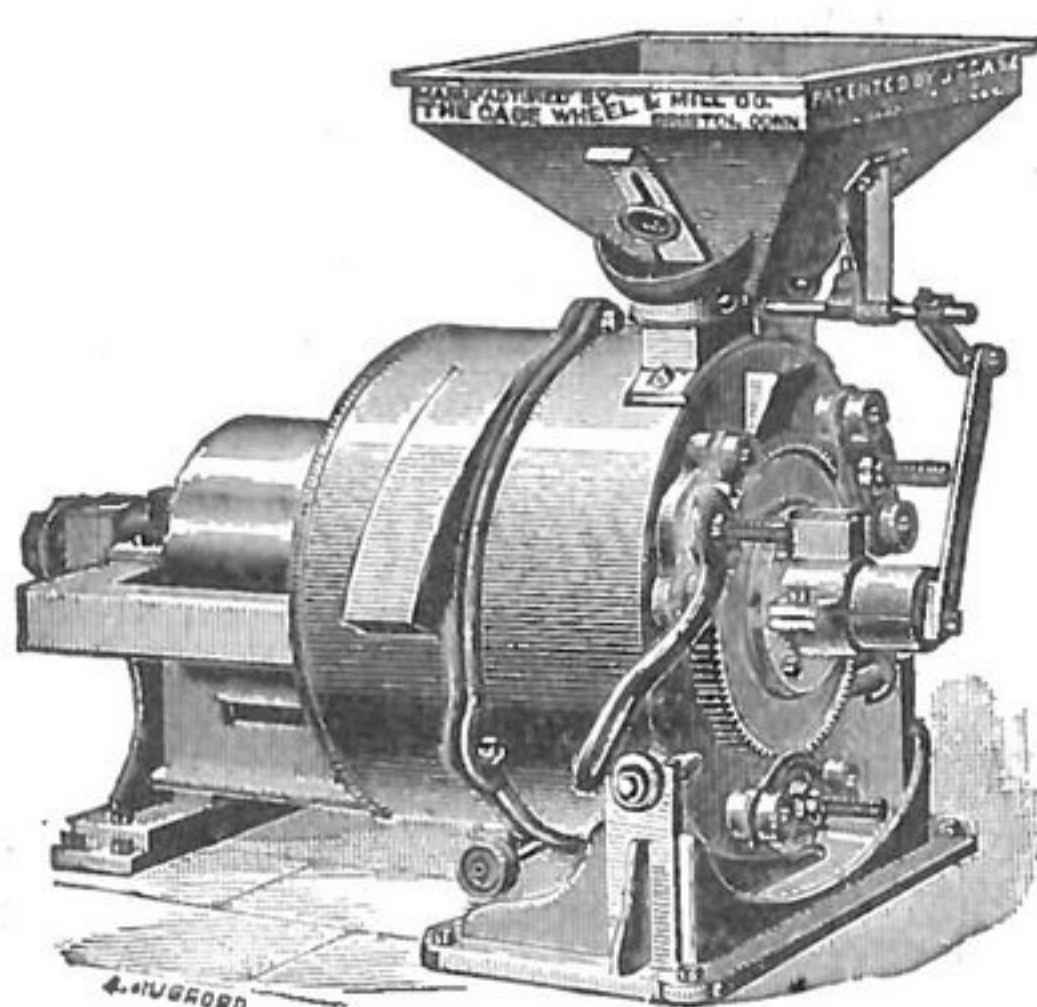
CHRONICLE OF THE GRAIN AND FLOUR TRADE

PUBLISHED EVERY MONDAY MORNING.

VOL. XXII. No. 10.

BUFFALO, N. Y., MAY 5, 1890.

\$1.50 PER YEAR.



VICTORY OVER ALL OTHERS. SINGLE & DOUBLE VERTICAL GRINDING MILLS.

(J. T. CASE'S PATENT.)

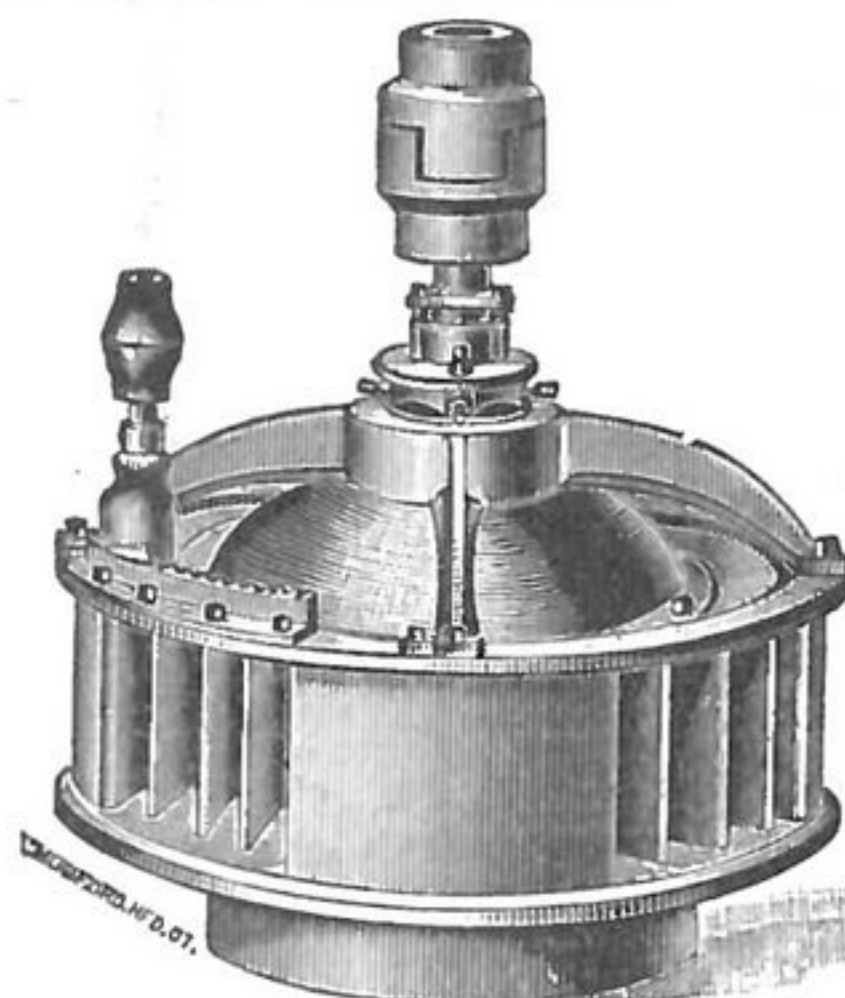
FACTS ARE MIGHTIER THAN ASSERTIONS. READ WHAT THEY SAY:

"Our 20-inch mill made by the Case Wheel & Mill Co. is in every respect satisfactory, easy to handle, and best results obtained of any mill in the country, with same quantity coal and power."—A. S. RUSSELL & Co., Meriden, Conn.
 "Superior to any mill in use."—GEO. WESTON, Bristol, Conn.
 "The best satisfaction in quantity and quality."—CHILD'S ELEVATOR, Manchester, Ct.
 "We take pleasure in recommending it."—GARLAND, LINCOLN & Co., Worcester, Mass.

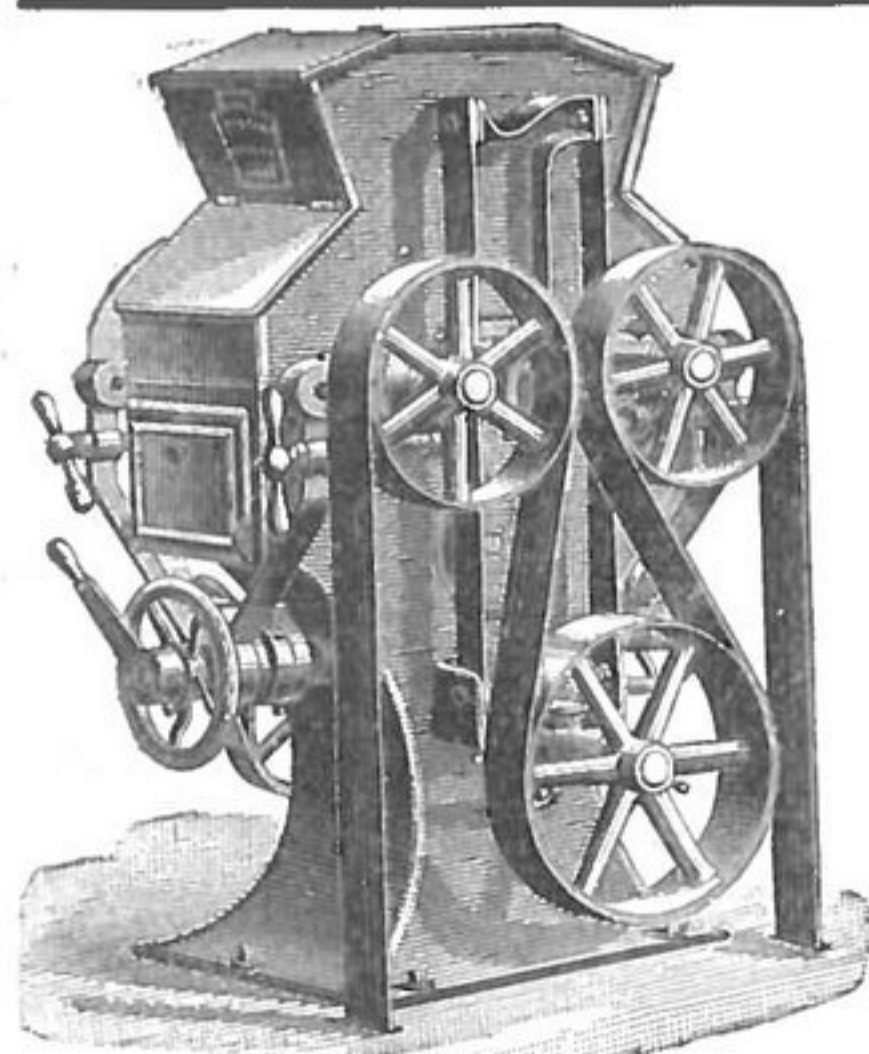
SEND FOR CATALOGUE—ILLUSTRATED AND DESCRIPTIVE.

The Improved National Turbine Water Wheel

The Best for Economy; The Best for Durability; The Best for Power. ONE THOUSAND FIVE HUNDRED NATIONAL WATER WHEELS IN USE Prove that our Assertions are Supported by the Leading Manufacturers in the Country. Send for illustrated catalogue and prices to the manufacturers.



The Case Wheel & Mill Co., Bristol, Conn.



THE "KEYSTONE."

HONEST WORK.

GOOD FLOUR.

THE J. B. ALLFREE CO., INDIANAPOLIS, IND.

GENTLEMEN: We have had the mill you built for us in successful operation since November, 1889. We are glad to say that **WE HAVE ONE OF THE BEST 60-BARREL MILLS IN THE STATE.** Our flour will compete with any thing in the market; our percentage of low grade is very small and our clean up is as good as we ask. Your rolls, in our judgment, are superior to any thing on the market, being light running, easily adjusted and having other improvements which we fail to find on any other roller mill. Your "Success" Bolters, Centrifugal, Bran Duster, and in fact **all the machinery gives perfect satisfaction.** Every thing is smooth, cool and easy, making the least noise of any mill of same capacity we have ever been in when running. A farmer came in a few days ago and said that **our mill did not make any more noise than an easy running sewing machine.** We honestly believe that our line of machines has more points of excellence than any we have seen, which is evident from the fact that this is the second complete mill which you have built for us (or practically the firm), within four years, both of which are running, this latter being an improvement over the former one, and is what its name implies, a "Model Roller Mill." Wishing you the success you deserve, we are,

PERFECT MACHINERY.

FREETOWN, IND., April 7, 1890.

Yours truly,

TOBROCK, ALDENHAGEN & CO.

CLOSE FINISH.

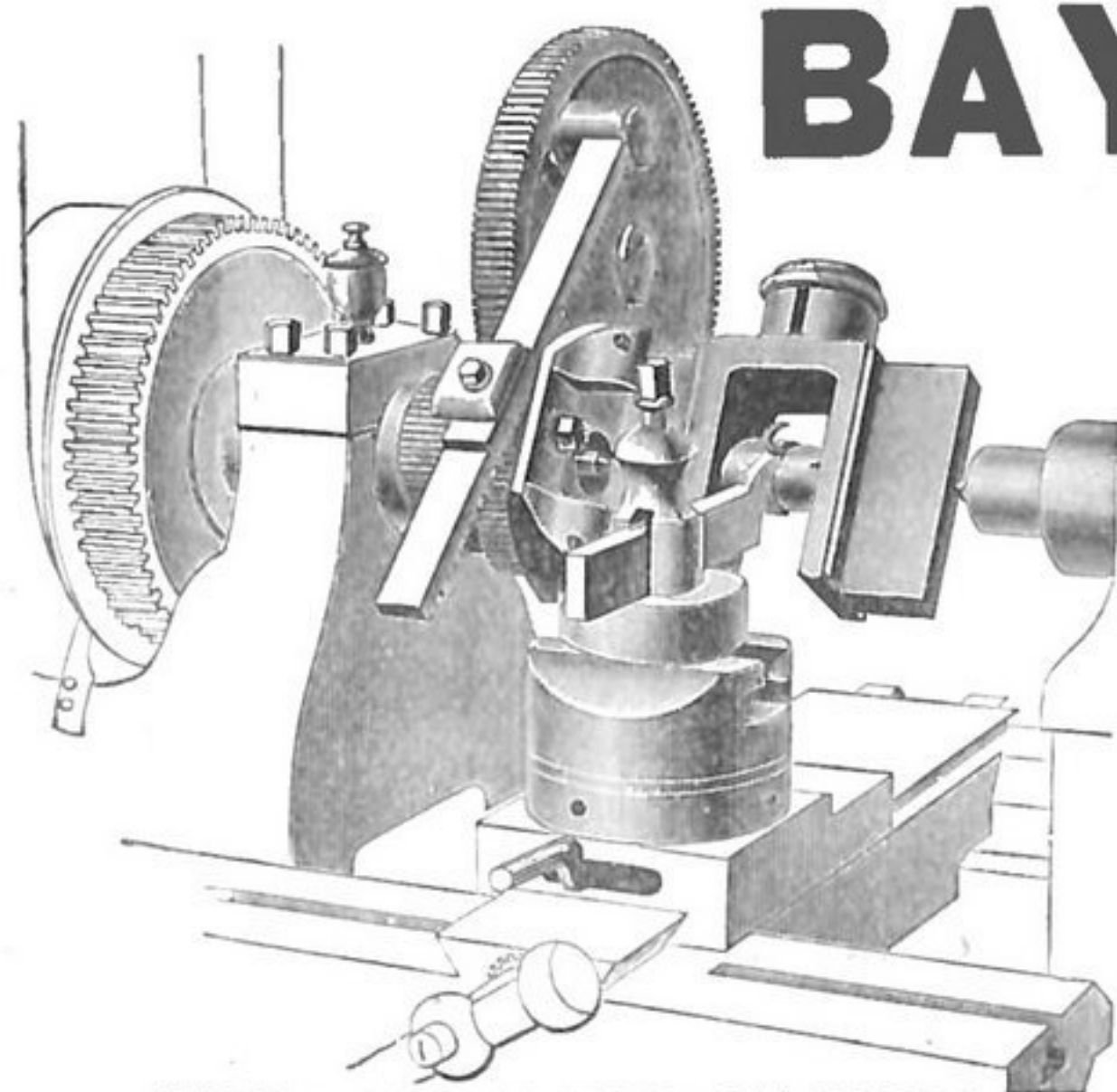
ADDRESS THE J. B. ALLFREE CO., 76 to 86 Shelby Street, INDIANAPOLIS, IND.

BAY STATE IRON WORKS

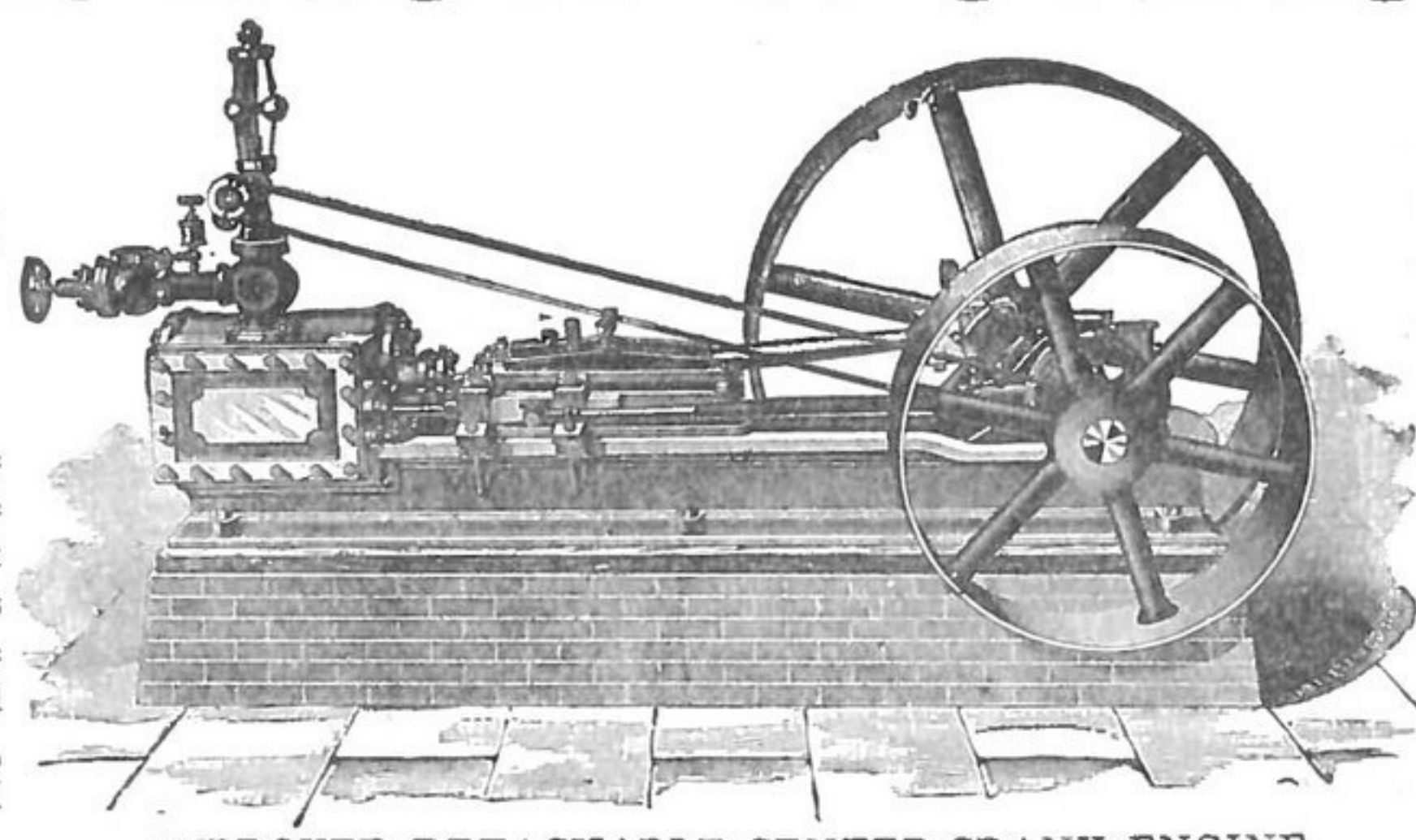
—Manufacturers of—

Engines, Boilers, —AND— HOISTING MACHINES.

Also the Patent Cross-Head Machine and Acme Cube Pipe Tongs. We make either Center or Side Crank Engines, on same bed. Make engines from 5 to 250 Horse-Power. Have over 3,500 Engines and Boilers and over 1,000 Hoisting Machines in use, and all giving good satisfaction. Send for Catalogues and Prices.



PATENT CROSS-HEAD MACHINE.



IMPROVED DETACHABLE CENTER-CRANK ENGINE.

Noble & Hall, Box 462, Erie, Pa.

OFFICE OF CASE MANUFACTURING COMP'Y COLUMBUS, OHIO.

The Case Roller Mills. Over 14,000 Pairs in Use.

PLEASE READ OUR DESCRIPTION OF THEM, EVERY STATEMENT OF WHICH IS ABSOLUTELY TRUE.

PLEASE READ WHAT MILL OWNERS SAY ABOUT THEM.



The accompanying cut is a correct illustration of our latest improved Four Roller Mill. For fine work, great durability, simplicity, and general excellence, they stand "head and shoulders" above all others.

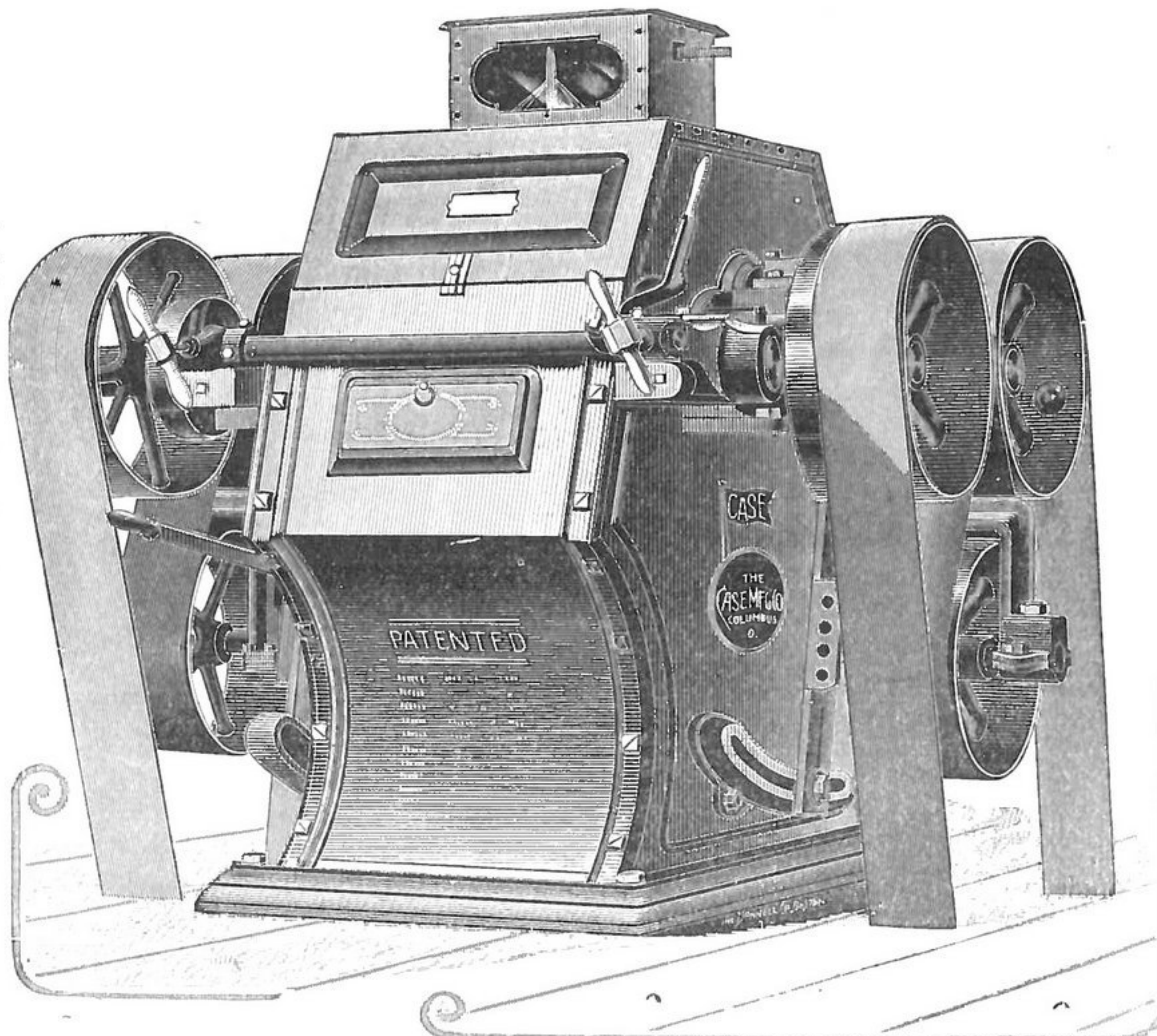
The frame is of iron with a heavy iron base.

The wood-work in top is of select cherry and black walnut, carefully shellacked and varnished.

The handles of adjusting screws and levers are finely nickel plated.

The joints are tight and dustless.

The adjustments easy, simple and perfect.



The roll bearings are wide and finely babbitted.

The belt drive is positive—no little short belts to slip.

The door for examining stock is a great convenience.

The arrangement for leveling rolls, simple and accurate.

The rolls can be thrown apart their entire length by one movement of the lever, and brought back again to original position, requiring no re-setting or experimenting.

Each machine is provided with our AUTOMATIC VIBRATING FEED, which requires no attention, and never fails to spread the feed the entire length of the rolls.



Please Read These Testimonials.

LITCHFIELD MILLING CO., MANUFACTURERS OF FLOUR. }
LITCHFIELD, ILL., Sept. 14, 1889.

Case Manufacturing Co., Columbus, Ohio.

GENTLEMEN: We are in receipt of your favor of the 11th inst., and in reply would say we have twenty CASE AUTOMATIC FEEDS on our Dawson and Allis Rolls, and we are greatly pleased with them. We have tested the Feeds thoroughly on different materials, and find they work as well on bran and germ and other soft materials, as they do on middlings. We have derived great benefit from the use of them, and can cheerfully recommend them to the milling fraternity.

Yours truly,

J. C. EDWARDS, General Manager.

OFFICE OF A. J. MILLER, PROPRIETOR WHITE ROSE MILLS. }
DEALER IN FLOUR, GRAIN AND MILL FEED. }
METAMORA, IND., Nov. 19, 1889.

Case Manufacturing Co., Columbus, Ohio.

GENTLEMEN: Your Feed arrived O. K., and placed it in working order in a very short time. You have furnished me a daisy Feed. After regulating your Feed, it needs no more attention. It pays for itself in one week over the "Roller Feed" in cleaning up the

stock, and also insuring the superiority at same time. I forward you the amount of bill.

Yours truly, A. J. MILLER.

TREZEVANT, TENN., Feb. 27, 1889.

The Case Manufacturing Co.

GENTLEMEN: We have five double stands of Rolls with Roller Feeds on all of them. A short time ago one of your agents induced us to try one of your Automatic Shaker Feeds. We find that it works much better than the Roll Feed, distributing the material the whole length of the Roll. We heartily recommend your feeds to any one wishing to put in new machinery.

Respectfully yours, FUQUA, HARRIS & CO.

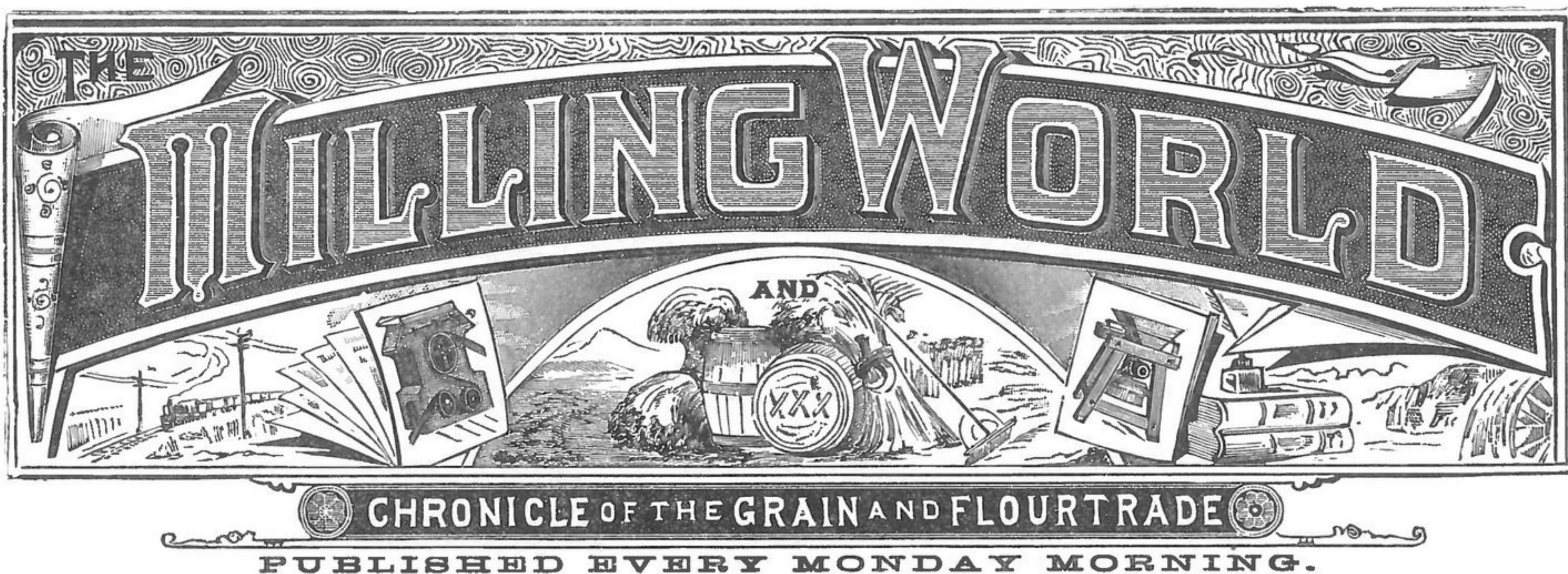
W. C. MANSEFIELD & CO., MERCHANT MILLERS. }
CLEVELAND, TENN., Aug. 29, 1889.

Case Mfg. Co., Columbus, O.

GENTLEMEN: If we were to build a hundred mills, we would not permit any other than the "CASE ROLL" to enter them. They are the best roll on earth.

Yours truly,

W. C. MANSEFIELD & CO.



VOL. XXII. No. 10.

BUFFALO, N. Y., MAY 5, 1890.

\$1.50 PER YEAR.

HUNGARIAN milling writers are amusing themselves by summing up the causes of the depression of 1889. Out of oceans of explanation come two simple and sufficient reasons for all the Hungarian depression: 1. Austro-Hungary had in 1889 a very short and very poor crop of wheat, making Hungarian millers pay very high prices for grain to grind and pushing the price of the product up above exporting notch. 2. Other competing countries, Russia, the United States and others, had abundant crops, enabling their millers to produce cheap flour and to undersell Hungarian flours in importing countries. All other reasons are entirely superfluous, and yet our Hungarian neighbors appear to take a mournful pleasure in imagining a thousand good reasons for all the misery that flowed from these two! They evidently "feel like having a real good cry" over the spilled milk.

ONE of our esteemed cotemporaries expresses the idea that there is no call for a weekly technical milling-journal. We can not see the point. Milling technics is milling technics, whether dispensed monthly, weekly, daily or hourly, and we believe our cotemporary would be troubled to prove that monthly doses are more to be desired than weekly doses. We suspect that our neighbor works on, or at least believes in, the plan of the old backwoodsman, who subjected himself to a terrible dose of "physicking nostrums" every spring, in order to "work off" the accumulated impurities of the year. Too much of a good thing in one dose may induce nausea or dyspepsia, while the same amount of the same good thing, properly spread over the year and perfectly digested, is sure to induce health and comfort. Milling technics is no exception to the general rule, notwithstanding the dogmatic assertion of our cotemporary to the contrary.

RECENTLY it was announced that Canadian capitalists were about to establish gigantic flouring-mills on the Pacific coast of Canada, to grind wheat flour for exportation to China and Japan. It transpires that the experts who were engaged to look over the field have decided that the venture will not pay, for the simple reason that Manitoba and the other vaunted Canadian wheat areas can not be depended upon for a supply of wheat. It is gradually becoming evident, even to the Canadian Northwest boomers, that not much dependence may be placed on a section that averages only one good crop out of four or five. Notwithstanding the enthusiastic imaginings of newspaper scribblers, who do not find much difficulty in reaping future "great wheat crops" away up north, close to the home of the Esquimaux and the polar bear, it remains true that wheat-growing is, and must always be, a very precarious occupation in all portions of northwestern Canada, and also in the northern tier of States in the Union. If nothing else were in the way, the June and July frosts are generally to be feared in that latitude. Then there are the drouths that turn the soil to light powder in the spring, and the winds that blow the soil around promiscuously over all creation, carrying the sowed grain with the soil and subjecting the farmer to extra labor and expense. If ever there are great flouring-mills successfully operated in the Canadian Northwest, they will operate on

wheat grown in the United States, where something like reliable conditions prevail.

It is evident that the reports of damage to the United States winter wheat crop by the March freezes have changed the tone of the reports on European and Indian wheat-crop prospects. Before the reports in this country were published, the European journals were quite dubious concerning the winter-wheat condition in Europe. Russia's stocks were depleted, and her growing plant was ruined in many places, damaged in many more, and not above average anywhere. Austro-Hungary and other countries had bad outlooks. Now all this is changed. Since the government report on wheat conditions in the United States was published, the European situation is entirely changed. Russia is full to bursting of wheat of last year's crop, and the condition of her winter grain is without blemish. So of Austro-Hungary and the other countries. Even Argentine Republic was revived by the reports, and her possible exportable surplus of 5,000,000 bushels has suddenly grown to 20,000,000 bushels or more. The same reports rejuvenated India and Australia. So sudden and so general is the change, that the student of affairs is at a loss to understand it, unless he sees under the surface the unscrupulous "bear" manipulators, whose interests are served most by magnifying every promise and by concealing every adverse element.

ALREADY the winter-wheat crop of the United States for 1890 is "short." The most conservative estimates place the damage done by the March freezes at 25,000,000 bushels, and the estimates range from that figure up to 45,000,000 bushels. An average winter crop is out of the question this year. Now come reports of decreased acreage in the spring-wheat States. Wisconsin, North Dakota and South Dakota report a decided decrease, and in none of the other spring States is there reported a large increase. The sowing of spring wheat will call for less than an average crop, with all the conditions favorable from sowing to reaping. A capricious summer, which is always a possibility, may cut the crop very far below an average. On the whole, judging from the present condition of the winter grain and from the reported sowings of the spring grain, the prospect indicates a total crop considerably below the average, and far below the abundant crop of 1889. Predictions are always unsafe, but it would not be strange if the price of wheat should go to a dollar on the farms next summer. There are reports of whole counties swept by winds that "blew the seed out of the ground," and the spring, after a phenomenally open winter, is very backward. If over-production has been the chief cause of low wheat prices during the past few years, this season may correct the situation by under-production. The Southern Hemisphere has failed to realize the brilliant predictions of the European "bears," and extra work is thrown upon the producing sections of the Northern Hemisphere. With India assuredly short, with the United States prospectively short, and with only average conditions in Russia and other European countries, it is not easy to see how wheat values can be prevented from rising very far above the low level of the present time.

The DAWSON ROLL WORKS CO.

FOUNDERS & MACHINISTS,

—MANUFACTURERS OF THE—

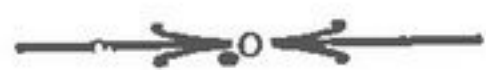
Dawson Roller Mills

—AND FURNISHERS OF—

CHILLED IRON ROLLS

WITH DAWSON PATENT CORRUGATION.

*ALL STYLES OF FLOUR MILL ROLLS RE-GROUND AND
RE-CORRUGATED WITH ANY FORM OF CORRUGATION.*



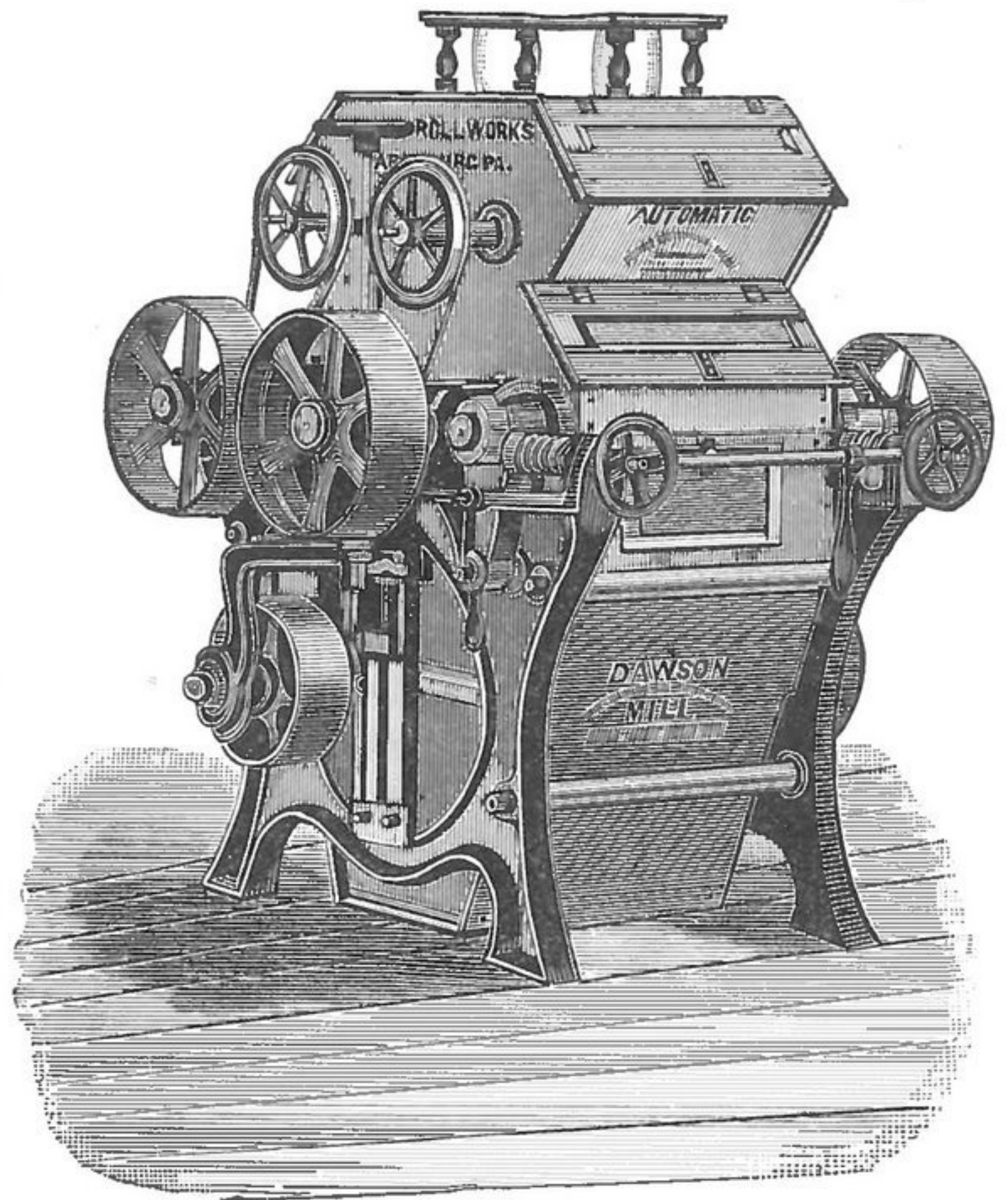
We have had large and extended experience in grinding and corrugating chilled rolls for milling, and have one of the largest and most improved plants in the country for this work, which enables us to meet the most exacting requirements of the trade promptly.

ORDERS AND CORRESPONDENCE SOLICITED.

DAWSON ROLL WORKS CO.

South and Short Streets,

HARRISBURG, PA.



The Cowles "Reliable" Sectional Wood Pulley



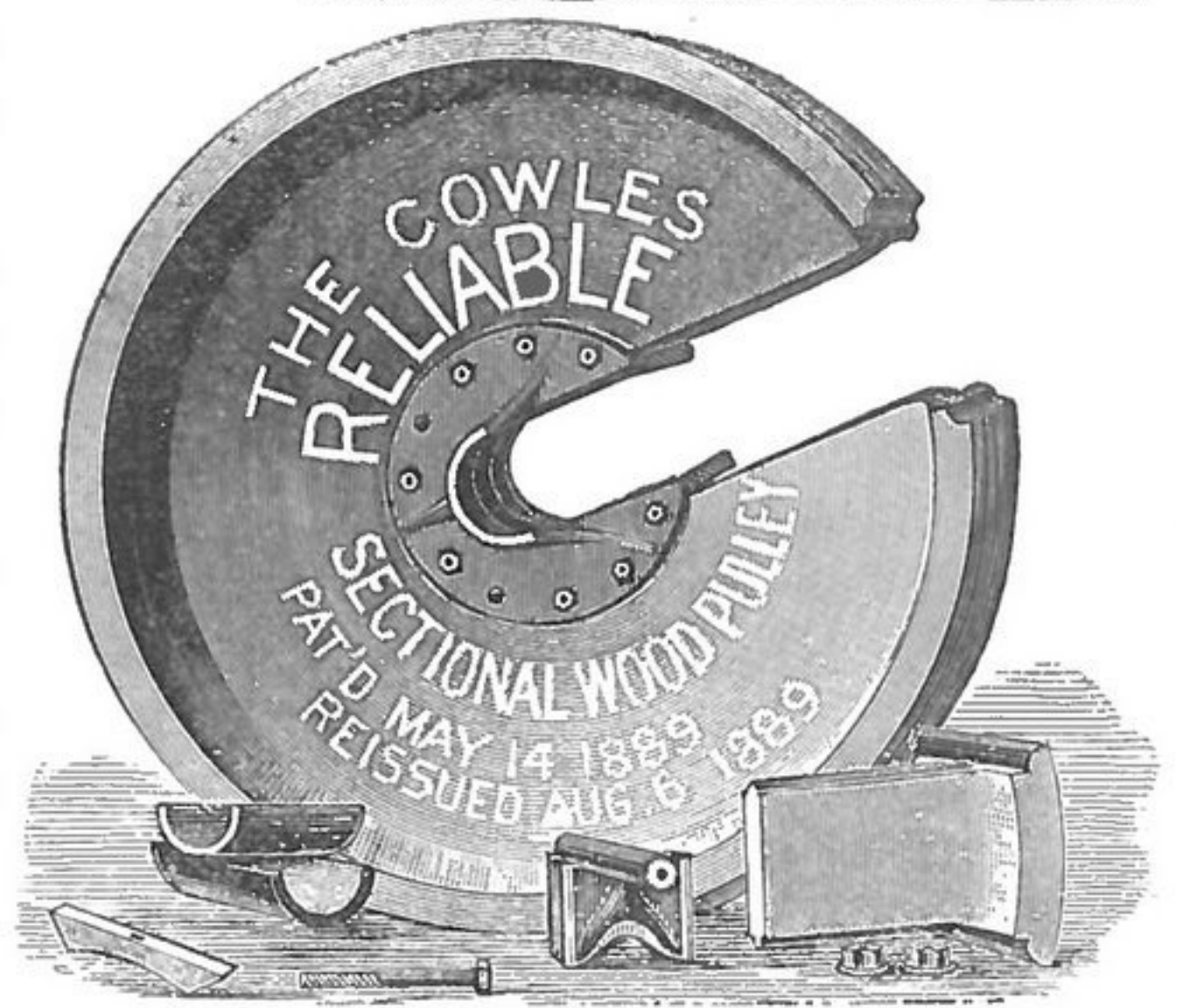
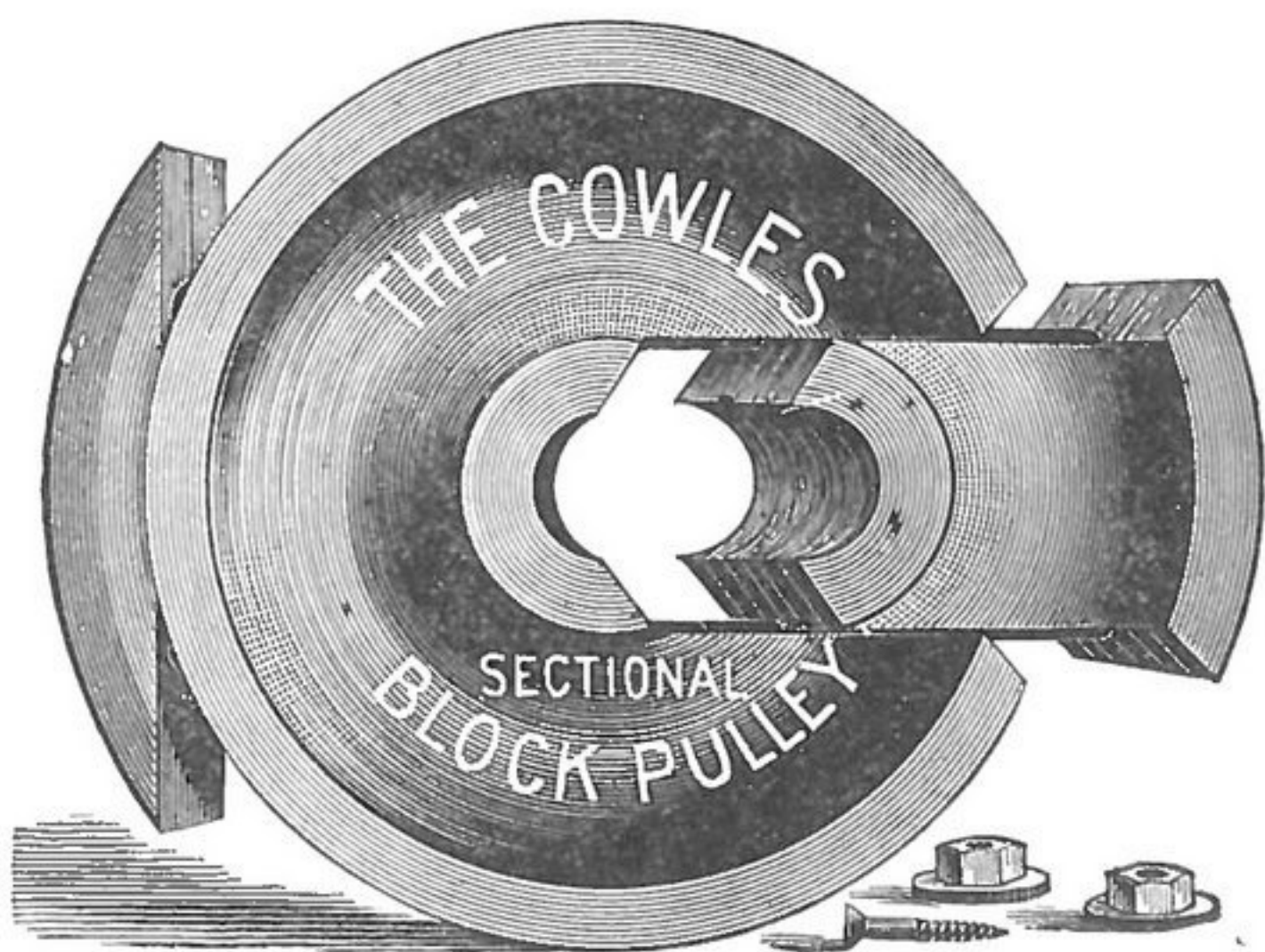
Web made of several layers glued together with grain crossing, and faced up on both sides. Iron flanges securely bolted to web. Rim put on after web has been trued up. Web and rim turned on inside and face, making perfect running pulley. Rim supported entire circumference. Positive self-gripping device for securing pulley to shafting, which is self-centering, and can not slip with wear.



A wooden rim pulley transmits from 30 to 50 per cent more power with same belt than an iron one.

Two-thirds lighter than iron, bearings will wear longer and the expense for lubricant will be less.

Having solid web, there is no air resistance. The "Reliable" can be placed on shaft or position changed in one-fourth the time required with any other pulley.



EDWARD GERMAIN, SOLE MANUFACTURER, SAGINAW, MICH., U.S. A.



PUBLISHED EVERY MONDAY. OFFICES: { Corner Pearl and Seneca Streets,
Over Bank of Attica.
McFAUL & NOLAN, - - - PROPRIETORS.
THOMAS MC FAUL. JAMES NOLAN.

SUBSCRIPTION.

In the United States and Canada, postage prepaid, \$1.50 Per Year, in advance; remit by Postal Order, Registered Letter, or New York Exchange. Currency in un-registered letter at sender's risk.
To all Foreign Countries embraced in the General Postal Union, \$2.25 Per Year, in advance.

Subscribers can have the mailing address of their paper changed as often as they desire. Send both old and new addresses. Those who fail to receive their papers promptly will please notify at once.

ADVERTISING.

Rates for ordinary advertising made known on application.
Advertisements of Mills for Sale or to Rent; Partners, Help or Situation Wanted, or of a similar character One cent per word each insertion, or where four consecutive insertions are ordered at once, the charge will be Three cents per word. No advertisement taken for less than 25 cents. Cash must accompany all orders for advertisements of this class.

Orders for new advertisements should reach this office on Friday morning to insure immediate insertion. Changes for current advertisements should be sent so as to reach this office on Saturday morning.

EDITOR'S ANNOUNCEMENTS.

Correspondence is invited from millers and millwrights on any subject pertaining to any branch of milling or the grain and flour trade.

Correspondents must give their full name and address, not necessarily for publication, but as a guarantee of good faith.

This paper has no connection with a millfurnishing house and aims to represent the trade without prejudice, fear or favor.

Address all communications

THE MILLING WORLD,
BUFFALO, N. Y.

Entered at the Post Office, at Buffalo, N. Y., as mail matter of second-class.

SITUATIONS WANTED.

Advertisements under this head, 25 cents each insertion for 25 words, and 1 cent for each additional word. Cash with order. Four consecutive insertions will be given for the price of three.

SITUATION WANTED.

Head miller with over 20 years experience want to make a change this spring. Address, A. MILLER, 67 Weaver Alley Buffalo, N. Y. 4t

WANTED.

A situation to run a 50 to 100-barrel roller mill. Pennsylvania, New York, Ohio and Michigan preferred. Address MILLER, Box 75, Union City, Erie Co., Pa. 86

WANTED.

A situation in some flouring or grist mill, by a man who has had good experience with the buhr system. Can furnish best of references. Address, THOMAS H. NICHOLAS, DeRuyter, N. Y. 811

SPECIAL ADVERTISEMENTS.

Advertisements of Mills for Sale or Rent, Partners Wanted, Machines for Sale or Exchange, etc., etc., cost 1 cent per word, for one insertion, or 3 cents per word for four insertions. No order taken for less than 25 cents for one insertion, or 50 cents for four insertions. Cash must accompany the order. When replies are ordered sent care of this office 10 cents must be added to pay postage.

FOR SALE.

One new Hominy Mill, capacity 5 to 8 barrels per hour. Address J. C. DIXON, Pocomoke City, Worcester County, Md. 7

FOR SALE.

A five run stone mill, with five water-wheels. Building 40x54, with five floors. A never-failing water power on Flint River, about 200 feet from R. R. track. Property worth \$15,000. Will sell for less than half that amount. For particulars call on or address RODGERS BROS., Genesee Village, Genesee Co., Mich. 1013.

MILL MACHINERY FOR SALE.

One No. 0 Standard Combined Separator, Smutter and Brush Machine; new, best make.
One 20-Inch Under-Runner Portable Mill, French Buhr Stone, capacity 10 to 12 bushels per hour; new, best make.
One 14-Inch Vertical Feed Mill; best make, new, a bargain.
One No. 6 Dustless Separator; new, a bargain.
One No. 1 Full Rigged Combined Dustless Separator; new, a bargain.
Four Corn Cob Crushers, right or left hand, driven from above or below, best make; capacity 40 to 60 bushels per hour.
Three No. 1 Corn Shellers, capacity 200 to 300 bushels per hour; new.
One No. 2 Purifier. New. Best make. A bargain.
One 20-Inch Portable Mill.
One 18-Inch Double Gear Portable Mill.
For particulars address, FRANK SMITH, care of THE MILLING WORLD, Buffalo, N. Y. 5tf

FOR SALE CHEAP.

One 36-In. Iron Frame Portable Mill, French Burr Stone, Used about 2 months.
One 20-In. Vertical Mill, French Burr Stone, Used about 30 days.
Three Pair 42-In. Old Stock Feed Stones.

FOR PARTICULARS ADDRESS,

SAMUEL CAREY, 17 BROADWAY, NEW YORK.

FOR RENT.

Clinton Mills, at Black Rock, Buffalo, for rent on reasonable terms, recently repaired and put in good order. Apply to CHAS. DANIELS, over 311 Main Street, Buffalo, N. Y. 6tf

FOR SALE, EITHER ONE CHEAP.

A circular saw planing and feed mill, 90 acres of good land, two houses, one cost \$1200, best water power in county. 42 H. P. Turbine wheels. Three miles east of Ashtabula, O.

OR,

Short systm full roller mill, capacity 2½ barrels of flour per hour, three grades. Buck wheat rig with Cranson shucker. Feed stone, &c. 40 H. P. Erie engine; locomotive boiler, all nearly new, on Main street, Ashtabula, O., two minutes walk from Post Office. Big retail trade. For particulars enquire of L. B. HOWARD, Ashtabula, Ohio. Box 488. 1013.

LATE reports indicate that winter wheat lost at least 10 per cent. in condition during April. In New York wheat is close to the dollar notch. The bulls are on top.

ACCORDING to announcement from Jackson, Michigan, Mr. George T. Smith, backed by ample capital, has engaged in the manufacture of middlings-purifiers and other milling-machines, under the Smith patents. It is stated that, during the coming summer, he will build a large manufacturing plant on the eastern side of Jackson. Men like George T. Smith and Henry Villard can never be squelched. They have the "stuff" in them and are sure to rise.

AMONG the new advertisements in this issue of THE MILLING WORLD is that of the well-known American Injector Company, 175 Larned street west, Detroit, Mich. Particular attention is called to this advertisement and also to the illustrated article on another page describing their famous "World" injector. Address the company for their latest catalogue and price-lists. Every steam-user will find it a profitable volume. Correspondence will prove profitable.

THE area of spring wheat in the two Dakotas this season is estimated to be 25 per cent. below the area in 1889. The Minnesota area this year is said to be 5 per cent. greater than the area last year. These figures mean an important reduction in yield this year. The aggregate yield of North Dakota, South Dakota and Minnesota last year was nearly 90,000,000 bushels, and the reduction in area sown this year means a cutting down of that total, with an equal average yield, by an enormous figure. Certainly all the estimates and reports at hand mean hard work for the "bears" this year, if they propose to prevent wheat from advancing in price. The field at this writing seems to look like one gigantic clover-field for the "bulls" on wheat.

FROM the beginning of September, 1889, to the end of March, 1890, the millers of the United States sent to Great Britain 8,045,547 hundredweights of wheat flour, against 5,331,257 hundredweights in the corresponding time a year ago. During the same period this year Austro-Hungary sent 800,906 hundredweights, against 1,318,908 hundredweights a year ago. If the millers of Great Britain can really grind as well as they claim to be able to grind, and if abundant and cheap Russian, English and other wheats are just as good as the dearer American wheats, as the British millers are always asserting they are, it is not easy to understand why Great Britain is compelled to import such enormous quantities of foreign flour. What is the secret of the strong hold of American and Hungarian flours upon the British market?

PARTICULAR attention is called to the new full-page advertisement of that well-known and reliable firm, the Flen- niken Turbine Company, of Dubuque, Iowa, which appears in this number of THE MILLING WORLD. Millers will be interested in their celebrated roller-mills, constructed under the famous O. C. Ritter patent, as well as in their feed-mills, their Graham roller-mills, their round reels and scalpers, sectional round reels, grain-separators, motion indicators, and their turbine wheels, both vertical and horizontal, and built with or without iron flumes. Send for their latest circulars and catalogues and learn fully what they offer in their lines of specialties. They have a fine line of wares that are free from any suspicion of infringement of patents, and flour-makers will find both profit and pleasure in dealing with them.

POINTS IN MILLING.

EUROPEAN millers, who have experimented on steaming wheat, assert that, unless the steamed product is thoroughly cooled down before sacking or binning, it will sour in a short time. They pronounce steaming a "dangerous practice." I would like to hear from American flour-makers who have practiced steaming in their mills. The points of test for the practice of steaming ought to include: 1. The mechanical advantages derived from steaming. 2. The economy of steaming. 3. The effect of steaming on the color, the flavor and the keeping quality of the flour produced. What American flour-makers have tested the practice?

FOLLOWING is a communication from "Looker On" in the London "Miller" of April 7, which may interest millers in the United States: "There must be a reason why I can not with my millstones compete with iron cylinders for grinding, for neither cylinders nor stones can make better flour than there is in the wheat, and if I can with my millstones reduce wheat into 75 per cent. of flour and 25 per cent. offal and waste, without any heating or injury to the products, by no possibility can a roller-mill do more. Millstones will only perfectly granulate without any heat from 100 pounds to 200 pounds of wheat per hour, and, if in perfect order, the bran can be delivered fairly clean, and yet the rough brown coat, and any remains of the hairs at the brush-end left by the wheat-cleaning machinery, will still be visibly attached to the bran; but now the meal requires to be let fall from the periphery clear of the stone, and be gently removed from the millstone case by a slowly-revolving curb, for if whisked rapidly round in the stone case, as it usually is, abrasion of the bran must result. A No. 8 Blackmore bolting-cloth would, at the rate of about one ton (2,000 revolutions per hour), remove about 18 per cent. of coarse offal ready for sale from this granulated meal. The 82 per cent. going through this cloth must then be put over a Blackmore bolting-cloth, No. 11, or its equivalent of silk, probably a number between 3 and 6, and it would remove from 10 per cent. to 15 per cent. germ, fine bran and coarse middlings. This product must go to smooth rollers to crush the germ, and then go to purifiers, both gravity and sieve, &c., to remove the light material, and also to efficient sifting machinery, to sift out all the good middlings ready for further purification and reduction. The remaining 70 per cent., consisting of about 32 per cent. flour and 35 per cent. middlings, must be put over a silk reel covered with some number between 11 and 15, according to the wheat and quality of flour desired. A centrifugal must not be used here, for fear of injuring the middlings and driving greys into the flour, which should remain in the middlings, to be subsequently removed from them in the sizing and purifying machinery, before they go over the millstones for reduction into flour. It is in the reduction of these pure middlings that the millstones can show their advantage over smooth rolls, for the millstones will bear almost any reasonable amount of feed. If they are in proper trim, with only about two inches of face, the balance of the stone, if of good quality and true, will feed this short face with a regularity that no roller-mill can be fed with. This mill can in no sense be called an automatic mill, although elevators and conveyors will deliver to the next machines the material to be operated upon without any manual labor; yet each machine must be supplied with its proper feed. As there would be no heat in any part of a mill worked on these lines, the flour produced should be as good as is in the wheat. But, you say, look at the sacrifice of time and machinery. Millstones now grinding (I should say smashing up) 300 pounds or more of wheat per hour are now only to granulate 150 pounds, and then nearly one-half of that has to be afterwards reground. Just so. Water-mills now making 150 sacks of flour per week will then only make 50 sacks. It can never pay. Granted, my friend, but let us see if there is no way out of the difficulty. The millstones will only granulate 150 pounds of wheat per hour; they are not the least adapted for this work on the wheat. Let us put in four or five sets of break grooved roller-mills, with sifters, and so remove the 20 per cent. of

coarse offal, and then offer the 80 per cent. balance to your present machinery instead of the wheat, as you do now, and I believe, instead of 150 sacks of unsaleable flour, you would have 200 sacks that would make some of your neighbors wish your mill at Hanover."

IS NOT this complaint by a British miller very similar to the complaint of his American flour-making cotemporary, who is adhering to old-time methods and machinery? If the miller finds buhrs unable to compete with rolls, he should at once remodel to rolls.

EVERY inventor who applies himself to milling machinery seems destined to run through a whole line of discarded contraptions. During the year 1889 I saw a score of cleaning-machines, in model, planned by a score of men, and in every one of them appeared some of the most objectionable of the exploded ideas of former inventors. They all contained the idea of hard usage, of severe handling, of rasping the wheat grains on rough stones under pressure by stiff brushes, and of mangling the grain and wasting from 5 to 50 per cent. of the flour in order to remove the coat impurities. Of course most of the inventors of these mangling machines are not millers. Any flour-maker of this day, at all familiar with modern processes, at once "spots" the evil spots in such machines. The weakest spots are just the strongest spots in these cases.

OTHER inventions show the same want of knowledge of modern milling. I recall one bolting-machine, planned by a man who had never seen a middlings-purifier, which was a model of harshness. The only idea the inventor had was to get the stock "through" the cloth. The movement was not fast enough for him, and he invented a set of springs and paddles to "fire" the stock at and through the cloth. In that contraption "everything goes," big and little, fine and coarse. The springs caused the paddles to flap as fast as they were loaded, and the "flap" caused the load to fly against the cloth with great force. It is unnecessary to say that the whole concern was a ridiculous travesty on bolting-machines, quite equal to the Keely motor, or pneumatic grinding, or perpetual motion, or any other fad in that line.

INVENTORS, or cranks, or whatever else they may be called, who propose to go into invention in milling lines, ought to learn first of all what has been accomplished, and then what needs yet to be accomplished. Then they will be in condition to apply their talents profitably. They ought to learn, at all events, that wheat grain does not call for murderous whacking and sledge-hammer lambasting in grinding or cleaning.

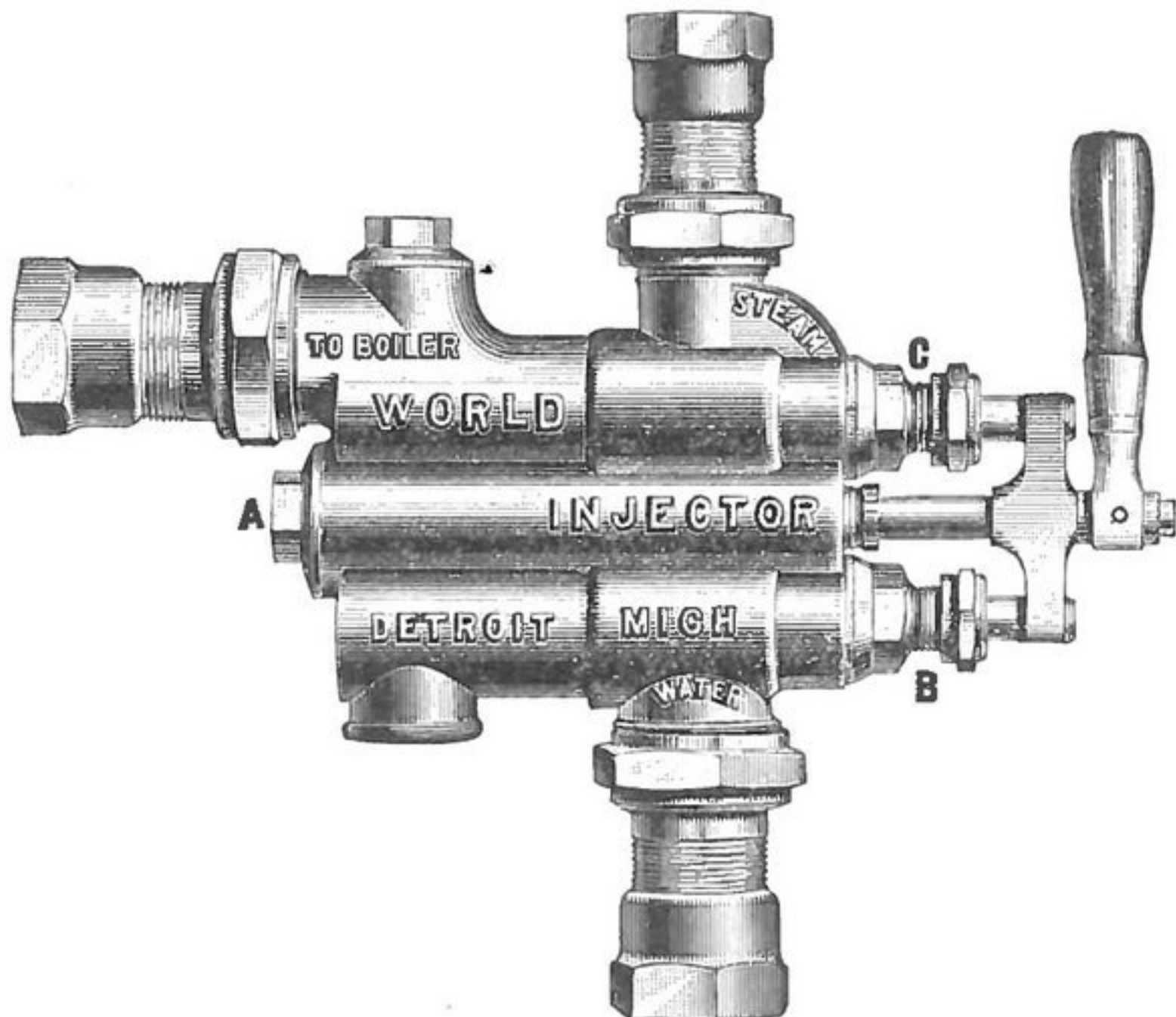
SPECULATION AND MILLING.

Says the Minneapolis "Market Record:" The claim is now made that the cause of the millers' hard luck is option trading or "futures." This country produces annually some 450,000,000 bushels of wheat. On some of the exchanges nearly as much as the total annual production is bought in a single day's session, when there is much excitement in the trade. There are some dozen or more of these grain exchanges in this country that do a heavy business, so that it may not be extravagant to say that the business on all of them averages 450,000,000 bushels of wheat each day in the year, or that a single day's purchase equals a year's production. Every day in the year such purchases go on. It is plain that, with a demand that can not be appeased with less than 2,500,000,000 bushels of wheat a week, it is appalling to the miller who has to compete in the markets with it. The masses of all such purchases are purely speculative deals. In that respect the miller is at a great disadvantage. It is known that he must buy to keep his machinery going. Speculators take advantage of it to force him to pay more than wheat is worth or shut down his mill at great inconvenience and cost. Allowing that the mills of the country consume 60 per cent. of all the wheat raised, the milling inquiry would naturally be expected to supply 60 per cent. of

the demand. Instead of that, one day's speculative demand buys more wheat in a day than all the mills of America take in a year. That buying fiend in speculative trading has a want that is always crying; Give! Give!

THE "WORLD" INJECTOR.

Herewith is illustrated the famous "World" injector, manufactured by the American Injector Company, 175 Larned street west, Detroit, Mich. This is claimed to be the best, the most easily handled, the most thoroughly efficient, and, at the same time, the most reliable injector now before the public. It is something entirely new. The makers have, after much experimenting, succeeded in constructing an injector that will work without any change of parts under all the varying conditions of supply-water and steam-pressure. This injector works equally well on its longest lift and the heaviest hydrant pressure. It is positive in its action. Nothing else which we have seen is so reliable, so absolutely certain. It is very simple, easily adjusted, and its manner of operating is such that a child can start or stop it. No valve is required in the suction-pipe unless the user desire to regulate the amount of feed-water. It can never blow back into the suction-pipe. The valves in the machine can all be got at so as to be reground and made tight if they ever get to leaking. The makers claim to give this injector a greater range than any other injector ever possessed. Every injector will start



THE "WORLD" INJECTOR.

readily on a 4-foot lift with 15 pounds of steam, and after starting the steam-pressure may run up to 150 pounds or down to 15 pounds without any attention to the injector, which will continue to work steadily if the suction is tight. Every injector without any change will work on a 10-foot lift, starting as low as 20 pounds and permitting a variation of from 15 pounds pressure to 130 pounds pressure. Every injector will work on a 20-foot lift; the range of steam-pressure being from 40 pounds to 120 pounds. The cut shows the neat and tasty appearance of the injector, and the makers only ask patrons to give one a trial as to the merits claimed for it.

COMMERCE ON THE GREAT LAKES.

Following is an abstract of the argument of Hon. George H. Ely, in the United States Senate, in February, against the bridging of the Detroit river: The number and tonnage of sailing and steam vessels on the northern lakes, June 30, 1889, as reported by the Commissioner of Navigation, was as follows:

Sail.....	1,285 vessels.	Registered tonnage, 325,082 tons.
Steam.....	1,455 "	" " 575,307 "
	2,740	900,389

This is an increase in registered tonnage on the northern lakes, in ten years, of 310,287 tons, although a decrease in the number of the vessels on the register of 303; the size and carrying capacity having enormously increased. What was the work of this great fleet in 1889, including 30 Canadian steamers and 21 Canadian sail vessels, with carrying capacity of 33,500 tons, engaged exclusively in trade through the Detroit river? The carrying capacity of sailing vessels is

known to be not less than 90 per cent. above the register; of steam vessels, 50 per cent. above. At Sault Ste. Marie lock only, on the lakes, is there an official record kept of the tonnage moving past any given locality. Estimates must be relied upon for the Detroit river movement. Fortunately, from well-known data, a close approximation to accuracy can be reached:

	Register. Tons.	Carrying Capa'y. Tons.
Sail, 1,285 vessels.....	325,082	
Adding 90 per cent.....	292,574	617,656
Deduct 1-20 of this carrying capacity as not engaged in traffic through Detroit river, and for short trips in lumber.....		30,882
		586,774
Steam, 1,455 vessels.....	575,307	
Adding 50 per cent.....	287,653	862,960
Deduct 1-20 as not engaged in traffic through Detroit river, and for short trips in lumber		43,148
		819,812
American sail and steam, loaded once in tons..		1,406,586
Canadian. Thirty steamers, capacity.....		20,300
Deducting 1-20, as above.....		1,015
		19,285
Canadian. Twenty-one sail vessels, capacity.		13,200
Deducting 1-20, as above.....		660
		12,540
Canadian sail and steam, loaded once in tons..		31,825
		Tons.

American sail vessels will average 12 round trips per season. Deducting 2 round trips (4 cargoes) for occasionally going "light," or with parts of cargoes, the season's tonnage would be 20 cargoes, 586,774 x 20 = 11,735,480

American steam vessels will average in a season not less than 15 round trips. Deducting 2 round trips (4 cargoes) for occasionally going "light," or with parts of cargoes, the season's tonnage would be 26 cargoes, 819,812 x 26 = 21,315,112

Canadian sail, 21 vessels, engaged in trade through Detroit river, with 12,540 tons capacity, the season's business would be 18 cargoes = 225,720

Canadian steam, 30 vessels, engaged in trade through Detroit river, with 19,285 tons capacity, the season's business would be 20 cargoes, = 385,700

Add for the lumber shipments, not included in above, the following:

The shipments of lumber were, in 1889:	Feet.
Saginaw.....	432,000,000
Oscoda and Au Sable.....	210,000,000
Alpena.....	150,000,000
Tawas, Black River and Cheboygan.....	250,000,000
	1,042,000,000
Deduct 4 per cent. as not passing Detroit.....	52,100,000
	989,900,000

The shipments of lumber in 1889 through the lock at the Sault were 315,554,000 feet. 70 per cent. of this passed Detroit river = 220,887,000

1,210,787,000 = 2,421,574

For forest products, logs, telegraph poles, etc., other than lumber, add 120,000 36,203,586

Comment upon this comparison of railroad and water-way tonnage is not needed. The facts are the demonstration. The lake tonnage movement, fairly estimated, through the Detroit river, in the 234 days of navigation in 1889, was 12 times greater than that of the railroads centering at Detroit over it during the 365 days of 1889, or 36,203,606 tons against 3,430,242 tons. The last issue of the Inland Lloyds' Register (American craft only), excluding a large number of small sail craft and low-grade lumber carriers, gives the insurable value of 1,974 of the 2,740 vessels on the U. S. Register at \$50,200,800. What has been done in the ship-yards of the lakes during the last four years will be seen below:

Winter of	No. Boats.	Capacity. Gross tons.	Value.
1886-87.....	31	65,750	\$4,074,000
1887-88.....	60	108,525	8,325,000
1888-89.....	59	100,950	7,124,000
1890-90.....	56	124,750	7,866,000
	206	399,975	\$27,398,000

The movement through the Detroit river in 1889 was at least 10,000,000 tons above the total registered entries and clearances at all the seaports in the United States. It was

3,000,000 tons above the combined foreign and coastwise registered tonnage of the ports of Liverpool and London for the year 1888.

	Tons.
The total tonnage entries (registered) in the foreign trade at the port of New York for year ending June 30, 1889, were.	5,596,821
The total clearances in the foreign trade at the same port for the same year.....	5,454,415
Total.....	11,051,236
The total tonnage entries at all seaports in the United States for the year ending June 30, 1889, were.....	13,311,652
Total tonnage clearances at all seaports in the United States were, for the year ending June 30, 1889.....	13,671,661
Total.....	26,983,313
The total entries at the port of Liverpool for the year ending December, 1888, in the foreign trade.....	5,278,529
Total clearances in the foreign trade.....	4,799,968
	10,078,497
Coastwise, for same period.....	4,096,703
Total.....	14,175,200
The total entries at the port of London in the foreign trade for the year ending December, 1888.....	7,291,825
Total clearances.....	4,618,993
	11,910,818
Coastwise, for same period.....	7,334,599
Total	19,245,417

COPPER IN GRAIN AND BREAD.

Following is an interesting statement made by Jules Van dens Berghe in "La Meunerie Francaise" concerning the presence of copper in bread. He says: "The following researches, made in consequence of bad quality of bread, do not pretend to constitute a complete work. I present them in the form of simple notes tending to elucidate the grave question: Does wheat, and consequently bread, contain, in the natural state, copper? Whatever opinion one may profess on this subject, these researches at once acquire a wholly special importance when it is remembered that bread constitutes the most precious public aliment. Conscienceless bakers have long known a particular sort of adulteration, consisting in introducing small quantities of sulphate of copper into the dough. This salt, employed in medicine as a medicament, externally as a mild cathartic in cases of ulcers, and internally as an anti-spasmodic, febrifuge and vomitive, becomes poisonous in a slightly increased dose. For use in the bakery the sulphate is dissolved in water to complete saturation, and some drops of this concentrated solution are added to the water which is used in making the dough. The quantity of copper thus introduced into the bread is surely homoeopathic. It varies between $\frac{1}{100000}$ and $\frac{1}{10000}$ and is incapable of inducing the least symptom of poisoning. One may, without fear of poisoning, make a hearty breakfast on nothing but tarts containing $\frac{1}{10000}$ copper, but if the absorption by the organism, accidental at first, becomes daily and regular, the question is modified, and until the contrary is proved, we shall continue to consider the introduction of sulphate of copper into bread prejudicial to the public health, notwithstanding the opinion of certain physicians who consider the use of this article in the bakery inoffensive.

"The origin of the use of sulphate of copper, or blue vitriol, in bread is not well known. All that can be said is that the incorporation of blue vitriol permits the use of flours of bad qualities and impure flours in bread-making. The blue vitriol hardens the dough and prevents it from spreading. Its presence makes possible the use of weak and moist flours. Therefore the sulphate of copper should be proscribed, not only because it is poisonous, but because, by grace of its mysterious properties, it is possible with it to produce a bread of good appearance from adulterated or deteriorated flours. Suspecting the presence of sulphate of copper in the bread which I was using daily, I caused bread to be bought in three bakeries, reputed to be the best in the city. I took from the center of each loaf a portion of crust and dough for analysis, working on the following plan of determining the quantity of sulphate of copper in the bread: In a large porcelain cap-

sule I incinerated 200 or 300 grammes of finely powdered bread. The incineration is long and should be slowly conducted; otherwise the silex of the ashes mingles with the carbon which escapes during combustion. With proper care not to force the calcination beyond that of a dull red heat, the operator obtains perfectly white ashes. In order not to have to refute the objection formulated by other chemists, that the copper which might be found in the bread did not pre-exist in it, but came from the gas-burners ordinarily made of copper, I had made a burner of iron from which copper was carefully excluded. The capsule in which the calcination was effected was placed upon a platinum triangle resting in turn upon an iron support. The white ashes obtained were treated with chlorhydric acid and water, evaporated in order to separate the silex, and the dry residue was treated with distilled water sharpened by the addition of a few drops of the same acid. The solution was filtered, concentrated and subjected for a half-hour to a current of sulphureted hydrogen. The least traces of copper were thrown down in the form of a brown precipitate of sulphate of copper. The following table indicates the analyses performed and the results obtained:

Weight and kind of the bread incinerated	Quantity of Sulphuret of Copper determined.	Metallic Copper contained in the Bread.
189 grammes of home-made bread..	0.0027 grammes	.0000111
231 grammes of white bread.....	0.0028 grammes	.00000952
226 grammes of brown bread.....	0.0027 grammes	.00000808

"In order to assure myself that it was really sulphuret of copper which I had obtained, I recovered the residue of the incineration from the filter by distilled water sharpened by a drop of nitric acid. I evaporated it to dryness, redissolved the whole in distilled water and, after filtration, examined the reaction of ammonia and of ferrocyanate of potassium upon the residue. The ammonia gave a manifest blue coloration, and the ferrocyanate of potassium gave a well-marked brown precipitate. It was, therefore, indeed copper which I held in my hand. Surprised to find very nearly equal proportions of copper in the breads of three different bakers, all having good reputations, I decided to ascertain whether, by treating in the same way the raw material used in making bread, I might not obtain an identical result. I therefore incinerated a half kilogramme of white wheat of the first quality, treating it precisely in all points as the bread had been treated, and what was my surprise on discovering that the wheat grain contained the same quantity of copper the bread contained! In fact, 500 grammes of grain gave .0058 gramme of sulphuret of copper, or .00000924 gramme of metallic copper. It occurred to me that the copper found in the wheat might have been introduced by the practice of soaking seed wheat in a solution of sulphate of copper, a common practice in some sections. In order to remove my doubts, I took 250 grammes of oats, not soaked, and harvested upon the experimental grounds annexed to the laboratory, upon a piece of land that had received no compost whatever. I found again in 250 grammes of oats, neither soaked in sulphate of copper nor composted, .0034 gramme of sulphuret of copper, or .0000108 gramme of metallic copper.

"Believing only against my wish in the presence of normal copper in cereals, I wished to be sure that the copper did not come from the valves and pipes used in conducting the gas. To settle this point, I calcined during 48 hours 100 grammes of sand, previously washed in hydrochloric acid and calcined, and treated it as the bread and grain had been treated. The application of sulphureted hydrogen gave not the least brown coloration, and consequently the sand had absorbed no copper during calcination. Finally, I closed the series of experiments by an examination of the hydrochloric acid used in the analyses. Of this acid 250 cubic centiliters, evaporated, recovered by water and a drop of the same acid, gave with sulphureted hydrogen no trace of sulphate of copper. Therefore I conclude: 1. The amount of copper found in bread, in the proportion of .000008 to .000010, is not introduced artificially, but pre-exists in the wheat in the state of normal copper. 2. It would be desirable, in the interest of the public health, to determine the quantity of copper which the

normal bread may contain, the sulphate of copper, besides being poisonous, being a means for producing bread of good appearance from bad flours."

THE WHEAT CROPS OF THE WORLD.

Following is a statistical showing of the wheat crops of the world in 1888 and 1889, compiled for the "Royal Agricultural Society's Journal" by W. E. Bear. The compiler says that "The Wheat Crop of the World" is a heading sometimes used by writers on the corn trade; but it is a misleading one, as no one has ever pretended to give a complete list of the produce of every country in which more or less wheat is grown. There are several countries in Asia, Africa and South America in which the quantity is not even approximately known; and when quantities for China or Japan, for instance, are given, they can only be regarded as pure guesses. In the following list the quantities for all the principal producing countries are official, while for certain small or remote countries they are estimated by high authorities:

Countries in Europe.	1888. Bushels.	1889. Bushels.
Austria	36,993,000	29,961,250
Hungary	131,670,278	95,000,000
Belgium	15,000,000	19,000,000
Bulgaria	26,000,000	35,200,000
Denmark	3,662,808	5,000,000
France	271,537,000	306,515,682
Germany	02,024,000	84,000,000
Greece	4,823,750	4,400,000
Holland	4,800,000	6,000,000
Italy	101,032,822	100,630,475
Norway	312,125	312,125
Portugal	6,860,000	9,000,000
Roumania	54,720,130	43,400,000
Russia (including Poland)	300,244,000	188,404,000
Servia	4,390,800	3,800,000
Spain	65,700,000	72,520,000
Sweden	3,698,575	3,593,000
Switzerland	2,048,000	2,400,000
Turkey	32,000,000	100,630,000
United Kingdom	74,493,133	75,883,611
Total	1,250,070,321	1,118,072,392

Countries outside of Europe.	1888. Bushels.	1889. Bushels.
Algeria	19,208,000	20,502,000
Argentine Republic*	18,000,000	24,500,000
Australasia*	26,205,977	42,000,000
Asia Minor	37,044,000	37,120,000
Canada (Ontario & Manitoba only)	32,000,000	25,901,091
Cape Colony, &c.	3,819,686	4,500,000
Chili	12,000,000	16,000,000
Egypt	8,000,000	6,000,000
India	260,372,800	237,147,856
Persia	21,952,000	22,000,000
Syria	14,187,500	12,400,000
United States	415,868,000	490,560,000

Total for these countries.... 868,657,963 940,720,947

Adding the totals for Europe to those of countries outside that continent, the grand totals for the principal countries of the world are 2,118,728,284 bushels for 1888, and 2,058,793,340 bushels for 1889, showing a decrease for 1889 of 59,934,944 bushels.

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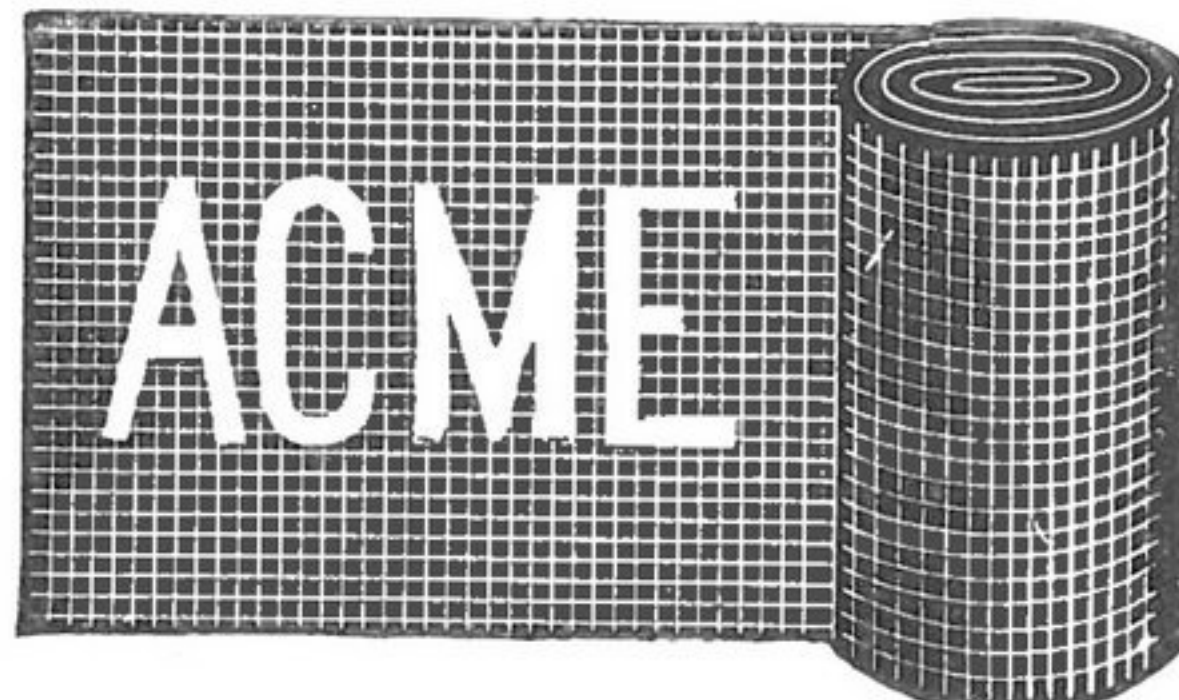
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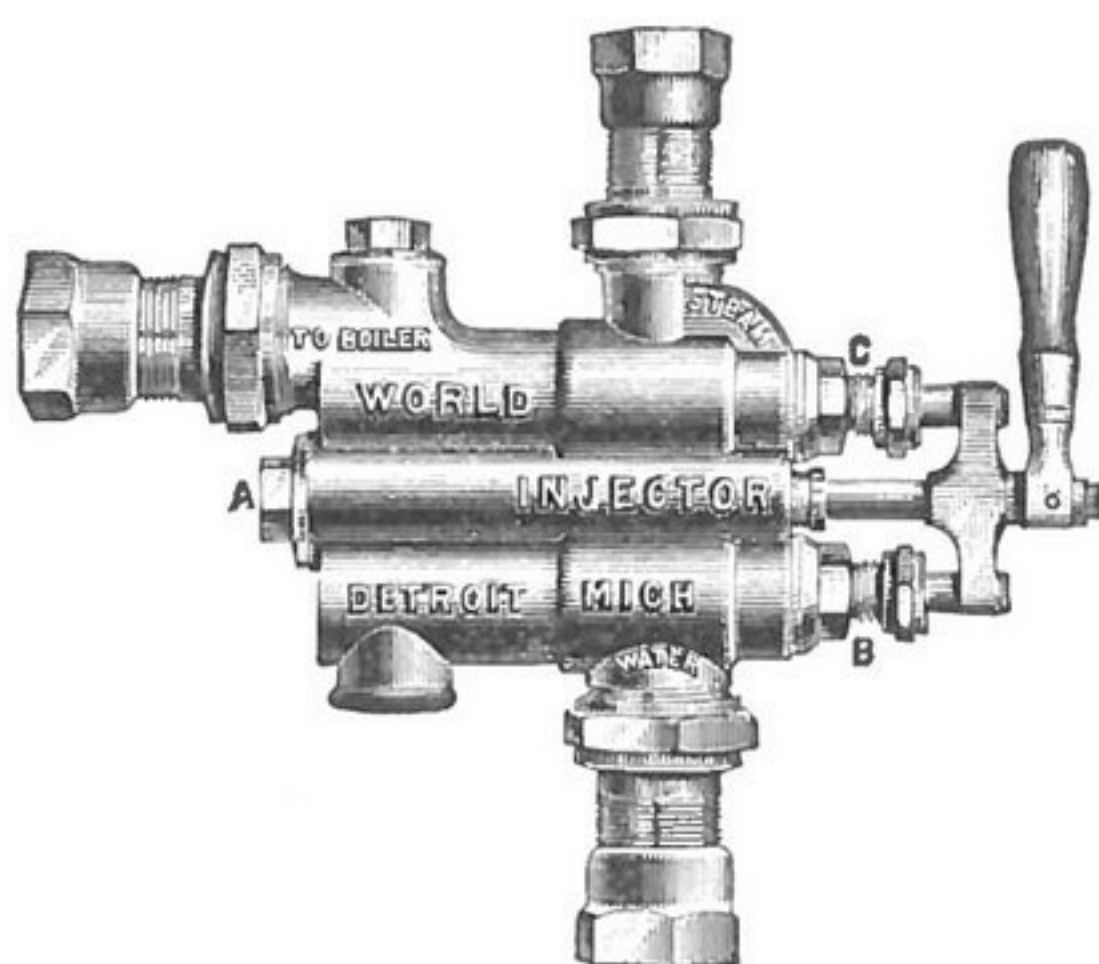
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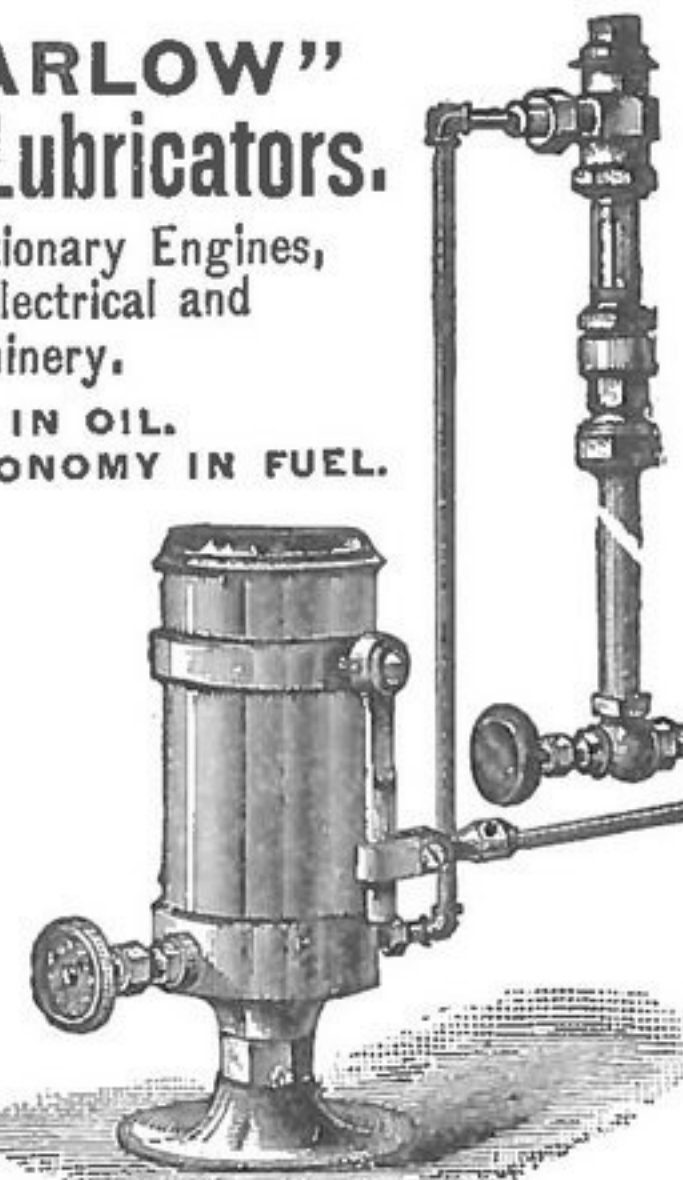
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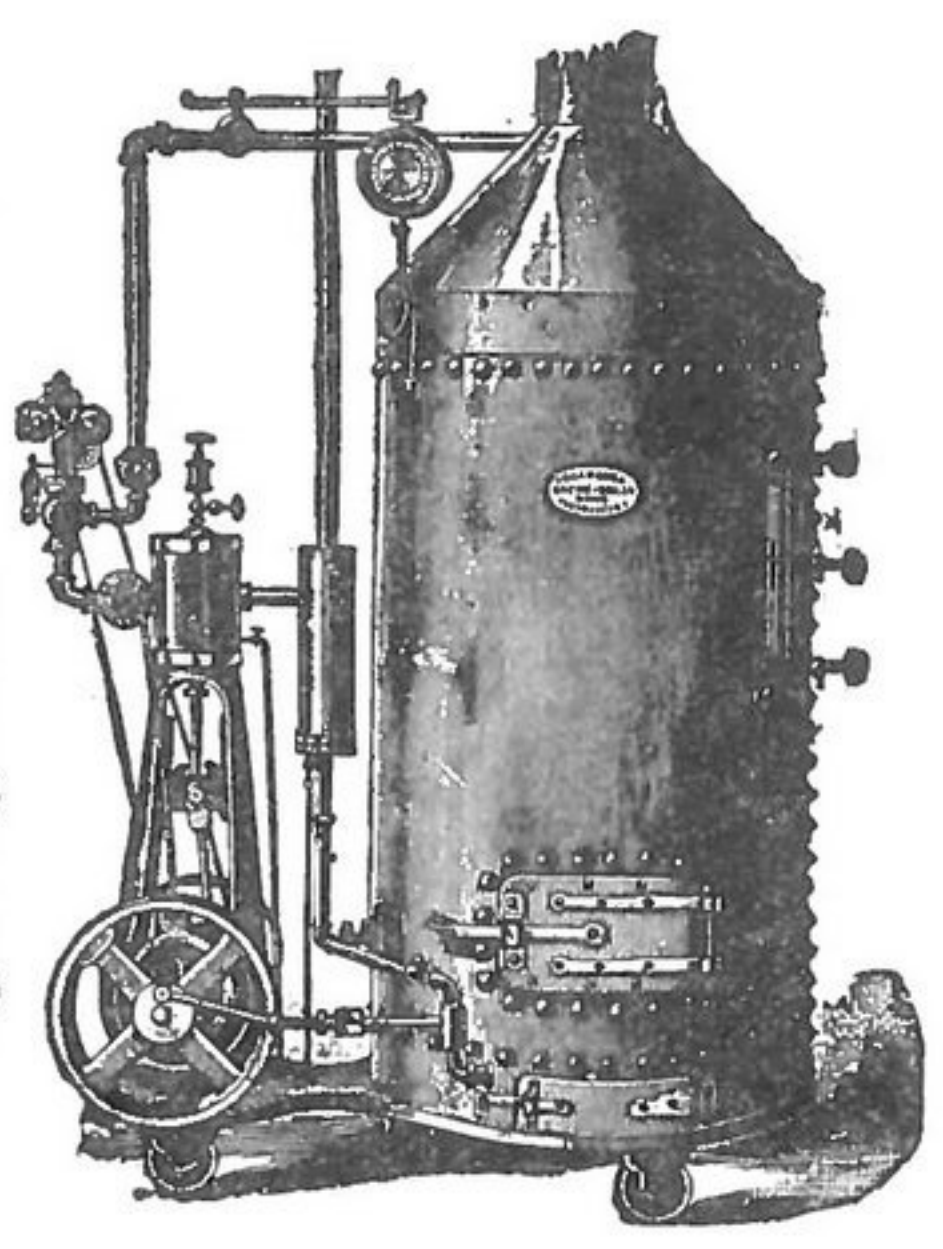


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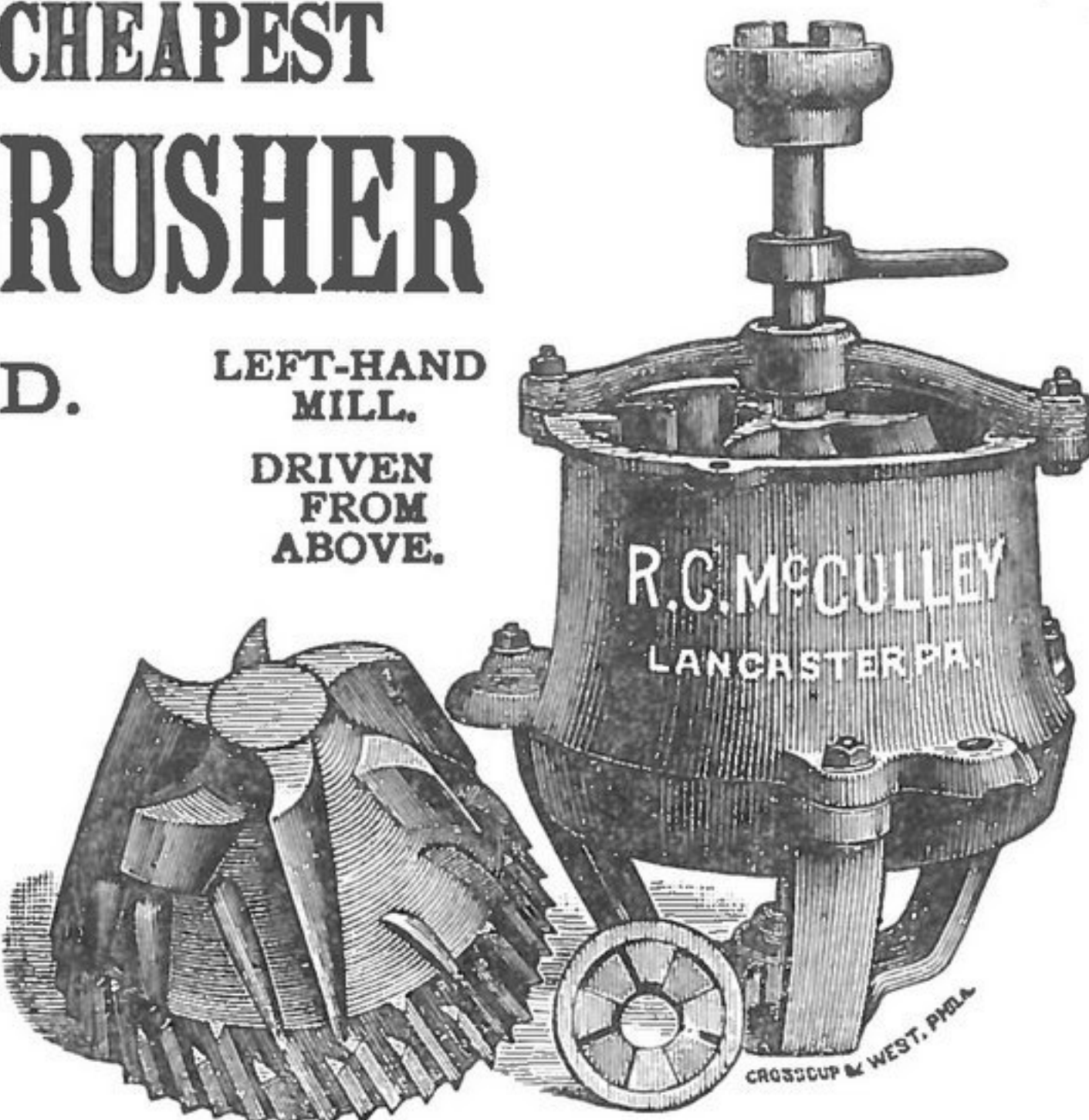
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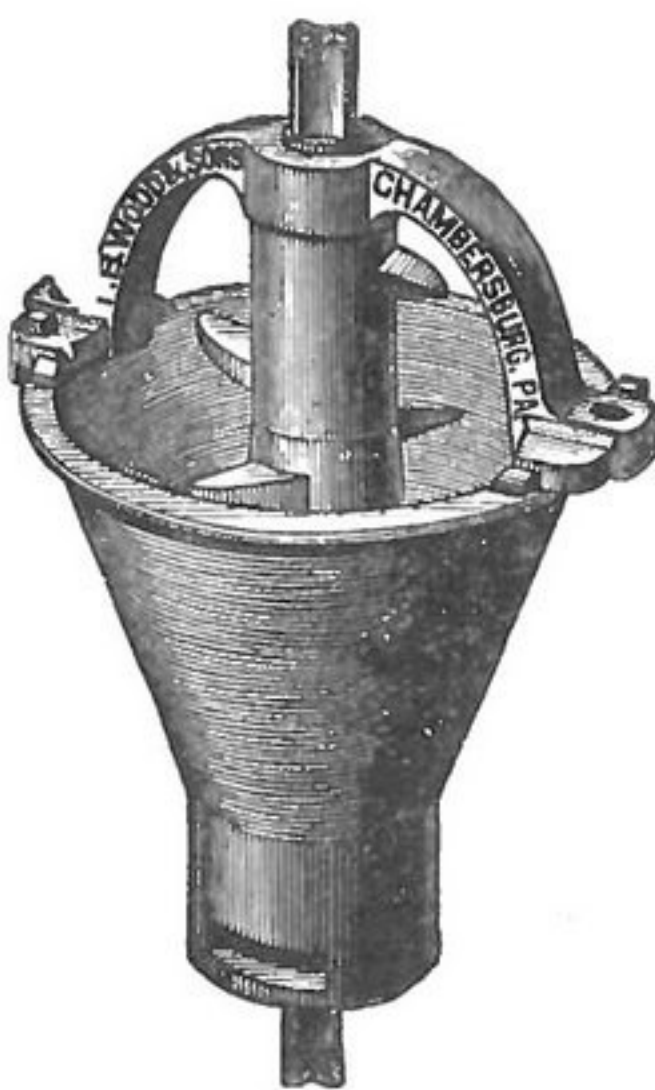
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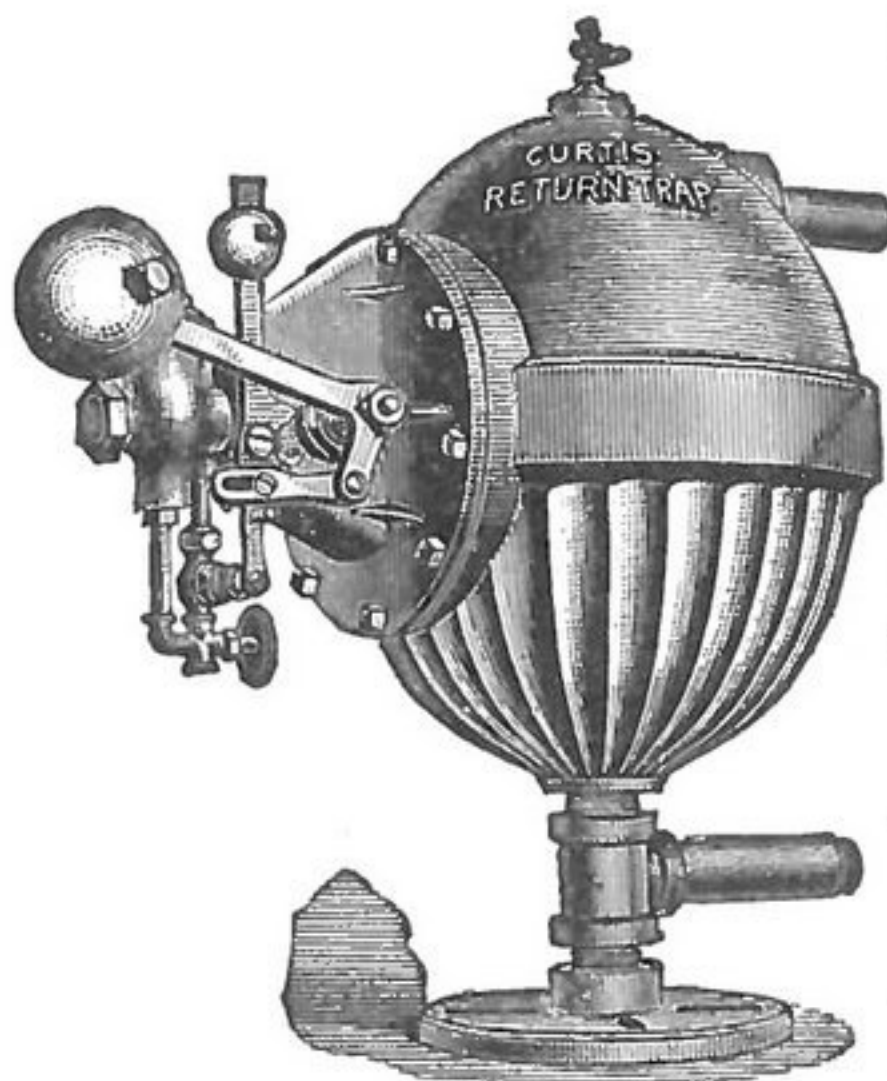
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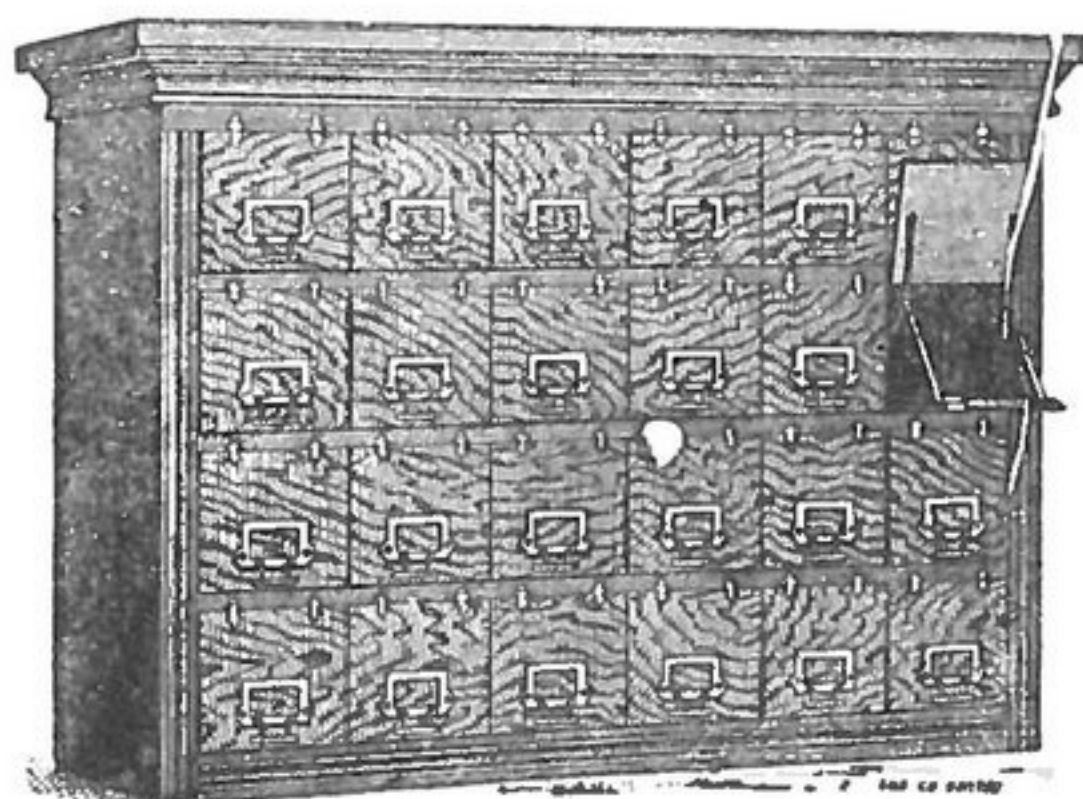
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T. Smedley, miller, Lyles, Pa., is dead.
 Munson, Ia., men built a \$4,000 elevator.
 B. D. Moyer, miller, Strasburg, Pa., is dead.
 Schlemme Bros., grist-mill, Glenside, Pa., burned.
 J. S. Kaw & Son, Denison, Tex., build a grist-mill.
 Horn Bros.' grist-mill, Glen St. Mary, Fla., burned.
 Moore & Krutz, millers, Ludlowville, N. Y., failed.
 Baldwin & Bailey, millers, Waupaca, Wis., dissolved.
 Marion, Kan., men build a 100,000-bushel corn storage.
 E. F. Friend, Marianna, Ark., added a corn-meal mill.
 Evans Bros.' grain-elevator, Bowling Green, Ky., burned.
 Dallas men propose to build a grain-elevator in Plano, Tex.
 P. Visser, barley mills, Stockton, Cal., sold to M. J. Carbis.
 Ryan Bros. & Co., Harrison, Ark., want milling machinery.
 Falconer & Bargamin, Bedford City, Va., remodel their mill.
 Bennett, Son & Summery's flour-mill, Papinsville, Minn., burned.
 The Albany, Tex., Milling Co. want corn meal and bolting machinery.
 The Rhome Roller Mill Co., Rhome, Tex., are building a flouring-mill.
 Adams Bros.' grist-mill, Thorpe, Wis., burned; loss \$5,000; no insurance.
 B. A. High, Auburn, Tenn., wants machinery to increase his flour-mill capacity.
 The Big Sandy Neill & Noe Lumber Co., Amma, W. Va., will build a flour-mill.
 The Lenoir, Tenn., Land Co. enlarge their flouring-mill; they want machinery.
 J. F. Terhune, grist-mill, Livingston Manor, N. Y., is succeeded by W. Sherwood.
 Belcherville, Tex., men project a 100-barrel roller flouring-mill; machinery is wanted.
 Turner Bros., Vance, N. C., want machinery for a 40-barrel water-power flouring-mill.
 G. M. Horver & Co., Dodge City, Kan., will not at present rebuild their burned flour-mill.
 The Farmers' Alliance elevator, Angus, Neb., burned; loss \$10,000; insurance \$2,000; fire incendiary.
 T. F. Pharr, miller, is putting new water-wheels in his flour-mill on Rocky river, near Harrisburg, N. C.
 The Vernon Mill & Elevator Co., Vernon, Tex., want machinery for a 200-barrel flour and a 50-bushel corn mill.
 The Sterling Milling Co., Sterling, Cal., will build a 75-barrel steam roller flour-mill this season; machinery is wanted.
 San Diego, Tex., men have chartered the Gueydman-Parkman Milling & Ginning Co., capital stock \$25,000, to build a grist-mill.
 Nosthey & Harrison's grain-elevator, Hampton, Ia., burned; loss \$10,000; insurance \$5,000. The building was owned by Mr. Beed.
 J. C. Loughry, Sipe Springs, Tex., has formed a stock company to build a 50-barrel flour and 25-barrel corn mill; machinery is wanted.
 J. G. Currie, Abilene, Tex., is president of the new Pioneer Mills & Mfg. Co., lately organized; they improve their mill and want machinery.
 All the conditions in the winter-wheat belt indicate a greatly reduced crop for 1890. Foreign reports grow somewhat better as home reports grow worse.
 A car-load of seed grain valued at \$700 was received at Pierre recently, directed to the governor of South Dakota. It came from beyond the Rocky mountains, and along the side of the car, in large letters, were the words: "To the drouth-stricken sufferers of South Dakota, from Walla Walla, Washington, where crops never fall."
 H. B. Fales, a farmer living near Cameron, Missouri, recently clipped 35 pounds of wool from one sheep. A bushel of corn makes a pound of

wool. The average price of wool is 20 cents. Mutton sells for 8 cents a pound, and the average weight of a sheep is 40 pounds, so that corn fed to sheep brings about 28 cents a bushel, without the cost of transportation.

The following comes from Springfield, Ill., in the form of an Associated Press dispatch: "Very discouraging reports are received from all over the State by State Board of Agriculture in relation to the wheat crop. The situation as reported a few weeks ago is not improved in any respect. It is stated that about three-fourths of the land seeded to wheat last fall is being plowed up for spring wheat, oats or corn. The other fourth will probably yield half a crop. As a rule, wheat suffered mostly on flat, low lands where water stood during the winter. The best wheat this year is found north of the so-called 'wheat belt' of the state. Wheat has suffered greatly during the last month from dry weather."

Says a Montreal letter of April 23: The condition of general business throughout the Dominion is not considered by bankers to be at all satisfactory, and if the crops this year should prove short, the outlook will be gloomy. In fact it is well-known that the Bank of Montreal, which is to Canada what the Bank of England is to Great Britain, is warning merchants to curtail their imports. The bank statement for March, just issued, is not satisfactory, showing a further enlargement of mercantile loans. In August, 1888, the aggregate discounts of the banks amounted to \$157,000,000, including bills taken against currency then being put out for purchase of the harvest, while at present these advances reach \$177,000,000, an increase of \$20,000,000, the greater part of which may be attributed to the pressure for credit and not to an enlargement of the commerce of the country. In the same period the foreign balances have been heavily drawn upon. Over and above the exchange supplied by the export trade, it has been necessary since August 1, 1888, to draw upon the foreign balances of the banks to the extent of over \$15,000,000 in order to provide for remittances.

Style is a great thing in managing a flour-mill. A correspondent in Attica, N. Y., writes to a Buffalo paper concerning the late manager of the Attica Mills as follows: "Horace H. Eldred's career at this place has been the subject of much comment since his arrest in Buffalo. He was a high-flyer. He came here from New York about 18 months ago to become general manager of the Attica Mills. He lived at the Purdy Hotel in Batavia, then at the Genesee in Buffalo, and afterwards rented M. S. Frost's furnished house in this village for \$75 a month. He spent a great deal of money, though his salary was but \$100 a month. He put in an electric light plant at the mills at a cost of \$7,000, representing to the mill-owners that the electric light company would take it, but the transfer was never made. The Thomson-Houston Co., of Boston, the John T. Noye Co., of Buffalo, and the Attica Mills are running the electric light to get their money out of it and are making it pay. Last Fourth of July Mr. Eldred erected spray fountains at the mill-dam and had calcium lights thrown on them. This cost the mill \$100. In many other ways Mr. Eldred's refined and expensive tastes were shown."

BOOKS AND PAMPHLETS.

Editor Murray, of the Cincinnati *Price Current*, has our thanks for a copy of his valuable "Annual Statistical Report" for the year ending March 1, 1890. This valuable report contains full statistics of the provision and grain trades, and every business man interested in those lines ought to have a copy. Address inquiries to Chas. B. Murray, Cincinnati, Ohio.

Good Housekeeping closes its tenth volume with the number for April 26, and the publishers may not only congratulate themselves over the success attained and the national standing of the magazine, but that this success and standing have been won by the public recognition of the merits of the publication. The present number is not behind its predecessors in the matters of interest to be found in its columns, though the palm must be given to Minnie E. Kenney's story of "Phemy," which is a powerful presentation of an unpleasant trait of our New England life. The other departments of the magazine are complete and attractive, and every family ought at least to inspect a sample copy, which will be sent on application by Clark W. Bryan & Co., publishers, Springfield, Mass.



W.A. BINGHAM,
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FLOUR SACKS.
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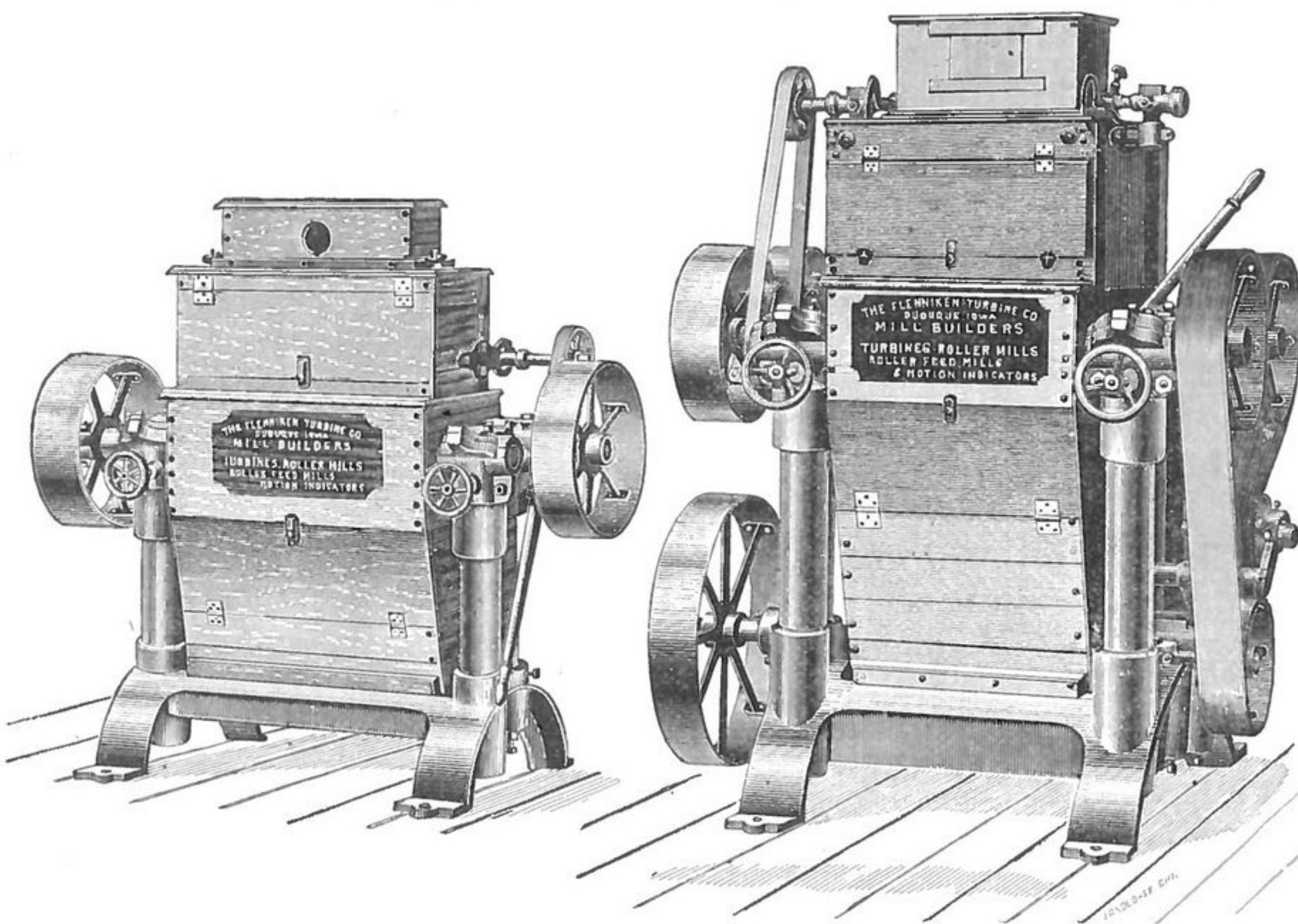
THE PATRONAGE of the MILLING TRADE is MOST RESPECTFULLY SOLICITED.

ONE REDUCTION TO THE FRONT!

*Ye jolly millers, one and all,
Who granulate with burrs,*

A Moses has Come to Deliver You from Egypt. Cease Trying to Make Bricks without Straw. The Red Sea of Expense Has Been Divided.

The Wilderness of Reductions has Been Shortened. There is Manna in Abundance for Those Who Believe. Listen to the Glad Tidings of Great Joy!



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Having consummated a bargain with **MR. O. C. RITTER**, the author and patentee of **One Reduction**, which gives us the *exclusive right* to construct mills under his patents, our patrons in the future will receive a license from Mr. Ritter.

SPECIALTIES! { Graham Roller Mills, Round Reels and Scalpers, Sectional Round Reels, Grain Separators, Motion Indicators. Before buying any of these machines send for our prices and descriptive circulars. } **SPECIALTIES!**
Second-Hand Machinery, and Bargains in Every Line.

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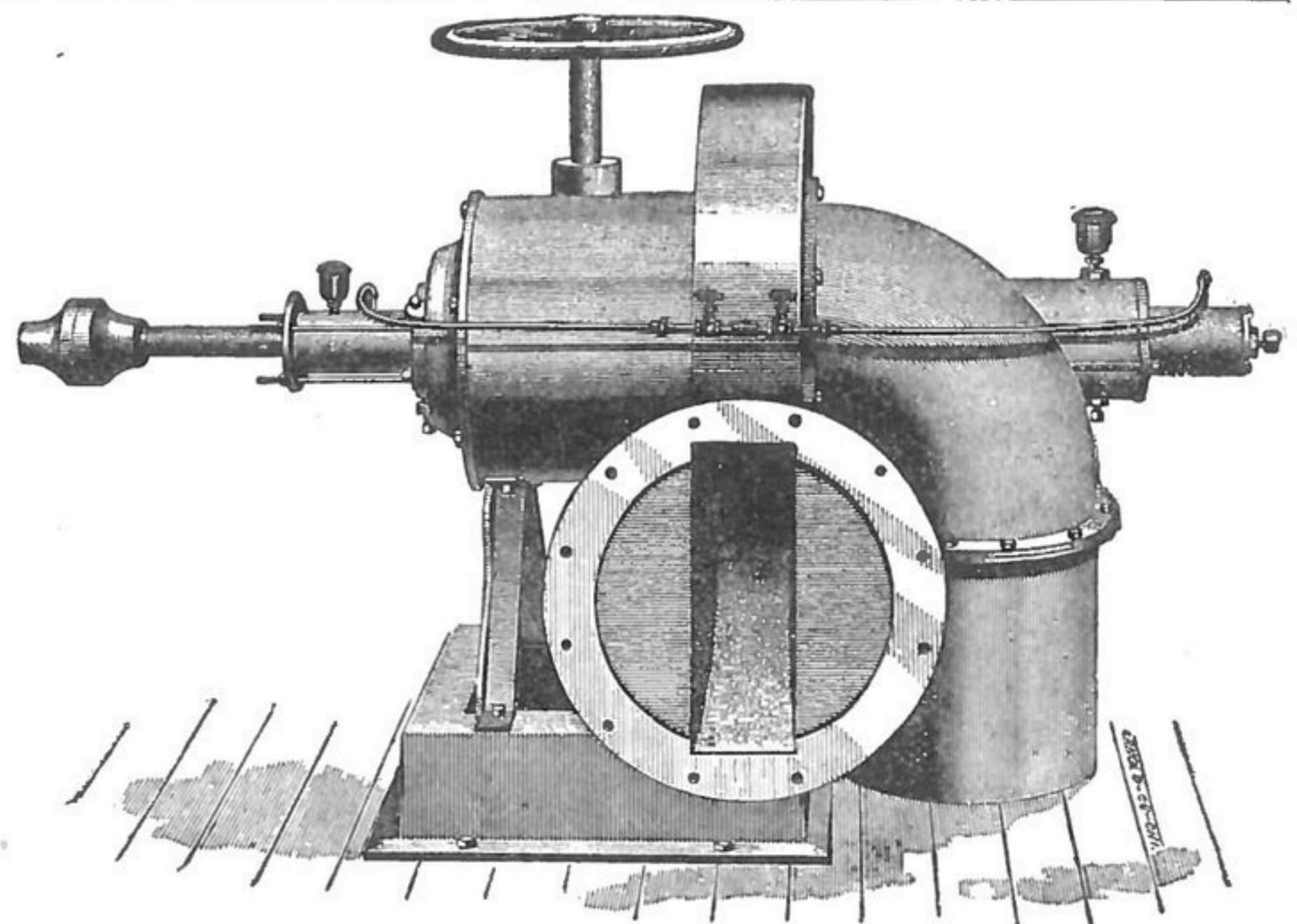
The Best Turbines!

VERTICAL OR HORIZONTAL,
With or Without Iron Flumes,

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DUBUQUE, - IOWA.



EUROPEAN ECHOES.

ACCORDING to a German cotemporary, nine-tenths of the fields of Germany are mortgaged to urban and foreign usurers. The great majority of these are Jews, who, it is alleged, act in many cases as the jackals of English capitalists.

FROM September 3, 1889, to April 7, 1890, the United Kingdom imported wheat grain and flour equal to 95,248,000 bushels, against 92,140,000 in the same months a year ago, and 85,616,000 bushels two years ago. The American contribution to the total this year was 50,670,200 bushels, or over 53 per cent. The imports of wheat grain from August 1, 1889, to April 7, 1890, into all European countries from the United States, Russia and India footed 138,672,000 bushels, against 140,736,000 bushels a year ago, and 149,346,000 bushels two years ago. The United States sent 65,520,000 bushels this year, against 47,928,000 bushels a year ago, and 78,392,000 bushels two years ago.

ACCORDING to statistical data the number of mills in Hungary amount to 17,277, comprising 910 steam-mills, 12,250 water-mills, 3,197 dry-mills, 650 wind-mills. Pesth has 13 mills with 11,414 horse-power. The largest concerns of the country, 11 in number, are situated in Pesth, of which eight belong to companies and three to private persons. Of the 910 steam-mills 122 are carried on on a large scale; their flour is exported to Austria, Germany, England, France, Switzerland, Belgium, Italy, Holland, Roumania, Brazil, Turkey, Bulgaria and Egypt. More than a half of the output available for export goes to Austria. The value of flour exported in 1888 reached \$23,700,000 against \$19,050,000 in 1887. The year 1888 shows the largest export since the milling industry came into existence. Owing to the deficiency of 1889 crop exports during 1889 fell off considerably.

SAYS the London "Miller" of April 14: From Argentine Republic is now coming our cheapest maize, about 16s. 6d. to 17s., and low-priced wheat, 30s. 6d. to 33s. The latter is regarded with some favor by the millers, who seem disposed to test the samples. The Consul in his report infers an export surplus of 2,000,000 quarters of wheat, and over 5,000,000 quarters of maize. The wheat acreage increased from 650,000 acres ten years ago to 2,500,000 acres last season, and thus a prospect is afforded of La Plata and other states forming the Republic in the near future competing with India in its exportable surplus of wheat. India, from wheat acreage and yield, is estimated to have grown 1,000,000 quarters below its mediocre crop of last season. Offers are made with reserve as to quantity, but value is quite moderate, 30s. to 35s., at which level there has been firmness for some time. Australia, with a total of wheat afloat, directed 299,000 quarters to our ports of call and 122,000 quarters to direct ports, follows, without controlling, other sellers, accepting the same terms as Californian shippers. The trade in wheat this season from Australia halts short of the importance given to it a couple of months ago.

COTEMPORARY COMMENT.

Most places in the northwest have had more or less rain in the last few days, and what is very cheerful about it is that the heaviest showers fell where they were most needed, in the dry region about the headwaters of the "Jim" and north of there. Reports received announce rain at Breckenridge, Crookston, Barnesville, Duluth, Brainerd, St. Vincent, Minn., Grand Forks, Fargo, Larimore, Valley City, Jamestown, La Moure, Carrington, Dawson, Mandan, Dickinson, Medora, Huron, Aberdeen, Watertown and Sioux Falls, Dak. By this list it will be seen that there has been no discrimination by the elements, and it is perhaps safe to say there is not a dry wheat field in the three States this morning.—*Minneapolis "Market Record," April 20.*

Bucket-shops all over the country are going down like a row of bricks. The collapse of Place's big bucket-shop system centering in Pittsburgh has been followed by the failure of J. R. Johnson's shop in Pittsburgh and Merrick,

Price & Co., of Philadelphia. The Doran-Wright concern in New York has "settled" with its creditors by giving them 30-day notes, and the house is again "doing business." A correspondent wires that "the concern means by that that it will continue to take in cash and pay its losses in 30-day notes as long as the suckers keep a coming." Bucket-shop failures this month involve liabilities amounting to considerably over \$1,000,000. This is a dead loss to the patrons of these institutions. Claims against them are not collectable at law.—*Chicago "Daily Business."*

OLD-TIME SHAFTINGS.

Comparatively a few years ago our shops were fitted up with cumbrous, slow-moving shafting of wood or cast-iron, relics of which still remain in many localities. A favorite form of shaft consisted of a wooden drum about 12 inches in diameter, having cast-iron journals running in the clumsiest imaginable hangers. From this drum the belts were run to drive the various machines. When the requirements of any machine rendered it absolutely necessary to have a higher belt speed than could be obtained from the drum, it was "built up" to the required size. This job was generally done in the most original and startling manner, and thus in the course of time the line usually became pretty well filled up or covered with a collection of "scabs" whose "wobbling" presented a frightful appearance when the shaft was in motion. If a belt ran off one of these improvised pulleys, which they did very often, it generally made about one "flop" and then began to wind up on the drum or body of the shaft. About that time everybody in the vicinity took to his heels. When the "slack" in the belt was all taken up, there was a period of suspense, which generally lasted about one-tenth of a second, and then something had to "let go."

SAYS the St. Paul "Pioneer-Press": It is unofficially rumored as coming indirectly from C. A. Pillsbury that the milling property, managed by himself and purchased six months ago by an English syndicate, will show a profit to the owners and operators of \$340,000 within half a year. The company issued 50,000 shares of preferred stock of \$10 each, drawing 8 per cent.; 50,000 ordinary shares of each, drawing 8 per cent.; debentures for \$635,000 at 6 per cent., the balance common stock. The interest on these shares must be paid in the order named before the common stock is reached. If a \$340,000 profit has been realized, these interests have already been more than taken care of.

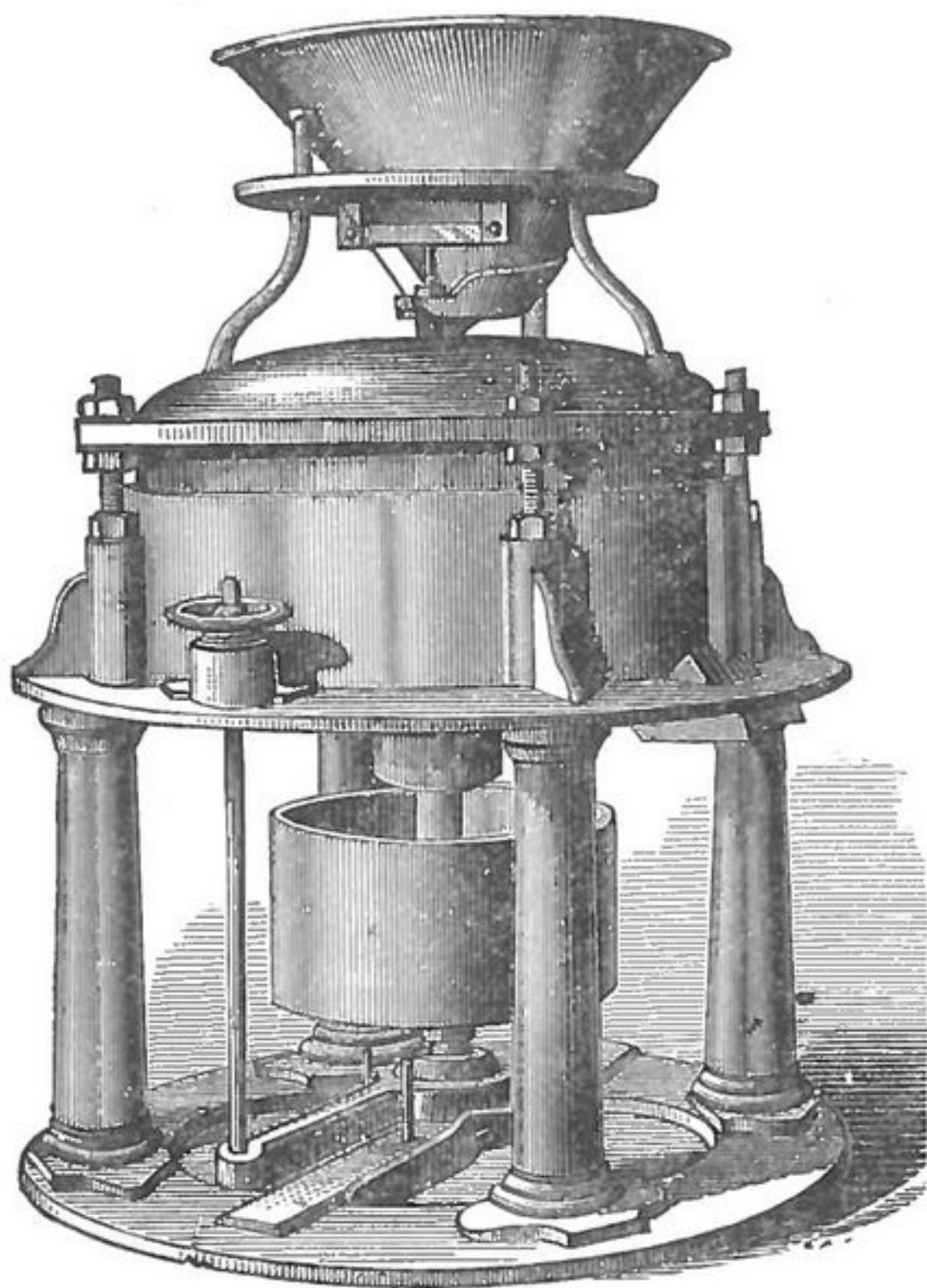
The May number of *Scribner's Magazine* is one of great attractions. The illustrations are numerous and beautiful, and the literary contents are of a high order. The list shows Carroll Beckwith's portrait of Jean Francois Millet for a frontispiece; "Barbizon and Jean Francois Millet," by J. H. Bartlett; "As Haggards of the Rock," by Mary Tappan Wright; "Backlog Dreams," by Frank Dempster Sherman; "Co-operative Home Winning," by W. A. Linn; "In the Valley," XXIX—XXXI, by Harold Frederic; "The Theaters of Japan," by T. J. Nakagawa; "Glimpse of Napoleon in 1804," by Clarence Deming; "Dead Cities," by A. Lampman, the Canadian poet; "The Rights of the Citizen," II, by Francis Lynde Stetson; "Distichs," by John Hay; "Pernilla," by Karl Erickson; "Corinne," by Eugene Schuyler, and an entertaining miscellaneous department. This magazine is very progressive in management and shows the highest American taste in literature and illustration.

A NEW METHOD OF TREATING DISEASE.

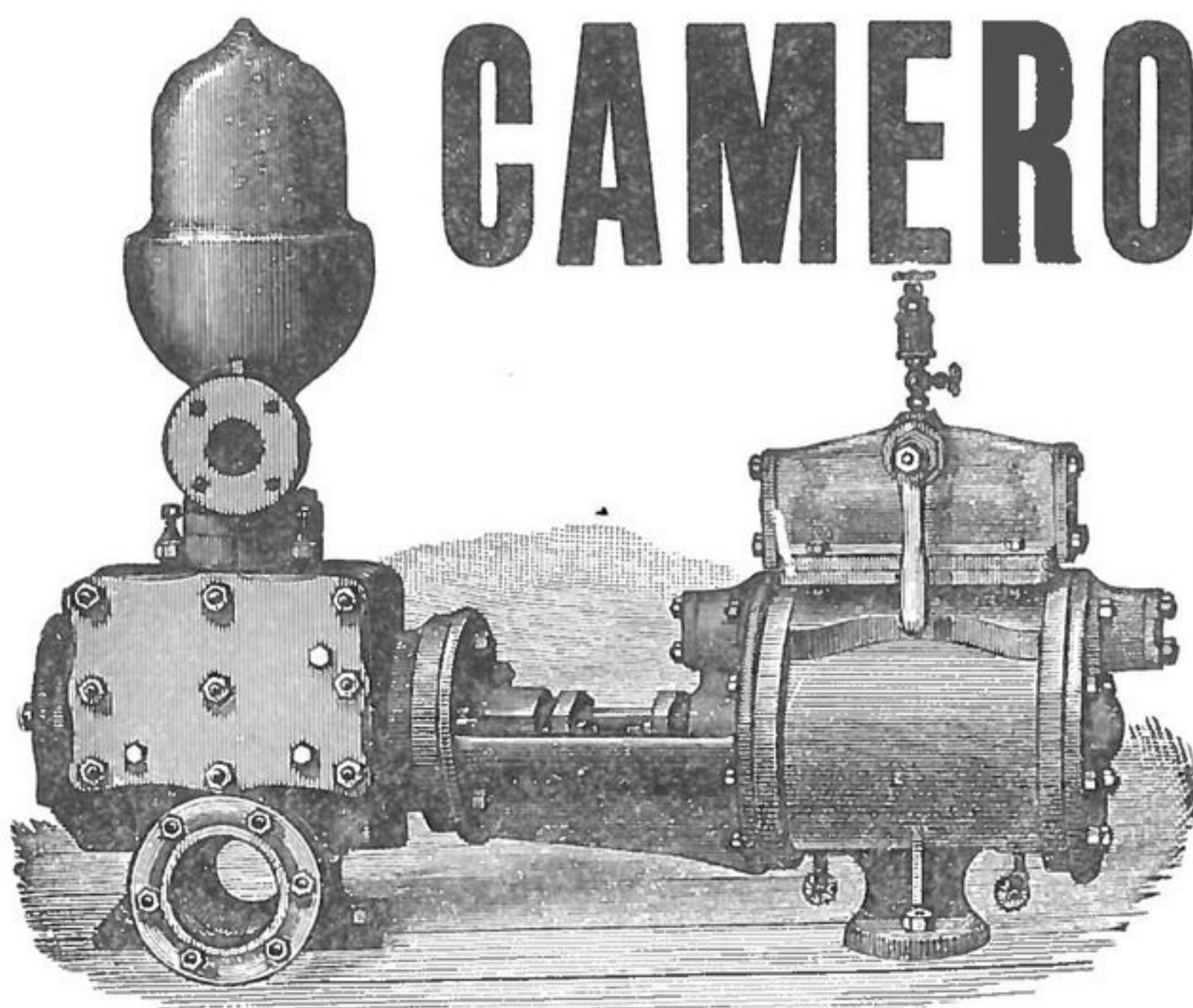
HOSPITAL REMEDIES.

What are they? There is a new departure in the treatment of disease. It consists in the collection of the specifics used by noted specialists of Europe and America, and bringing them within the reach of all. For instance the treatment pursued by special physicians who treat indigestion, stomach and liver troubles only, was obtained and prepared. The treatment of other physicians, celebrated for curing catarrh was procured, and so on till these incomparable cures now include disease of the lungs, kidneys, female weakness, rheumatism and nervous debility.

This new method of "one remedy for one disease" must appeal to the common sense of all sufferers, many of whom have experienced the ill effects, and thoroughly realize the absurdity of the claims of Patent Medicines which are guaranteed to cure every ill out of a single bottle, and the use of which, as statistics prove, has ruined more stomachs than alcohol. A circular describing these new remedies is sent free on receipt of stamp to pay postage by Hospital Remedy Company, Toronto, Canada, sole proprietors.



MUNSON BROS., UTICA, N. Y.,
—MANUFACTURERS OF—
PORTABLE MILLS
FOR CORN AND FEED GRINDING,
—WITH—
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Shafting, Pulleys, Hangers, Etc., and General
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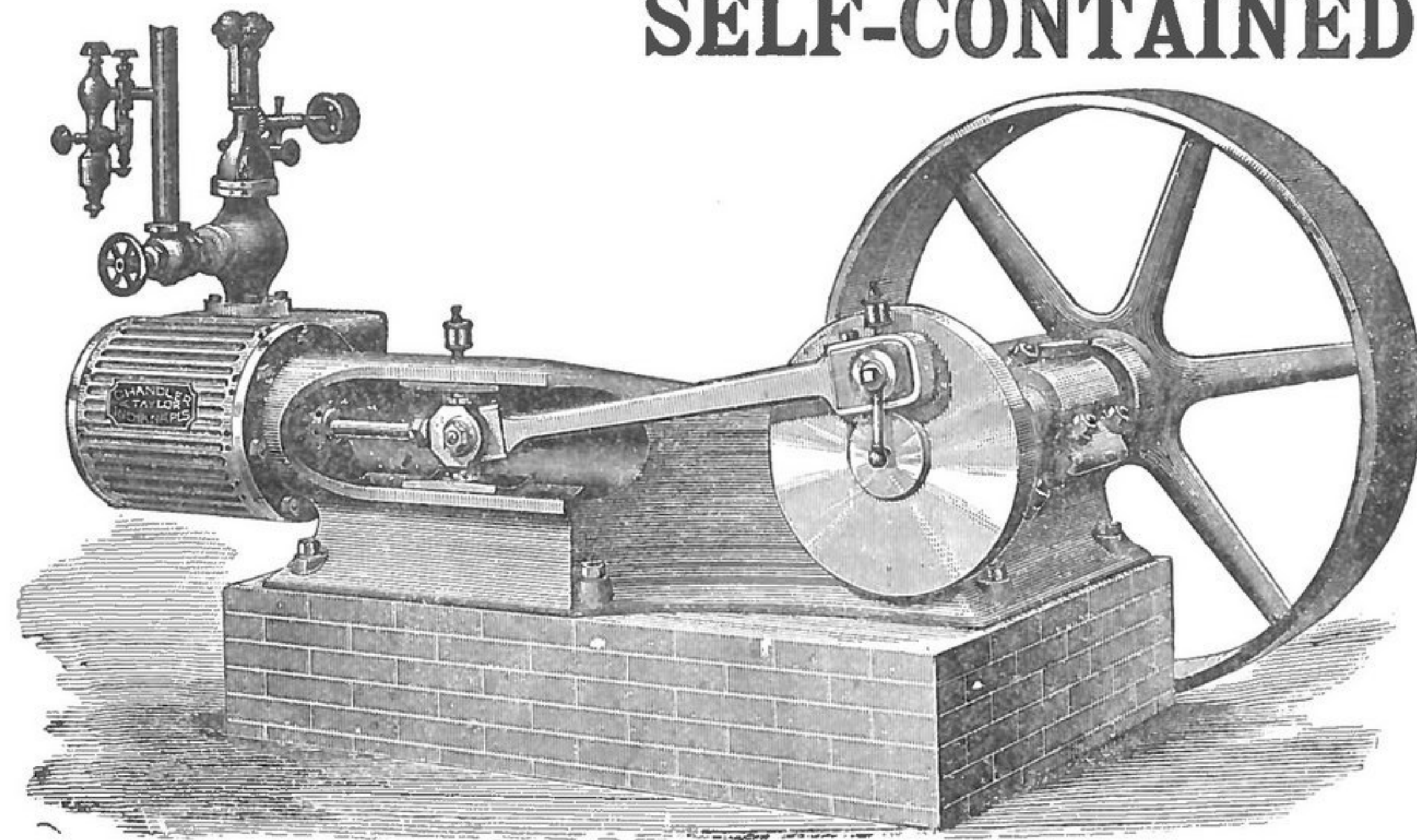
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Steam, Air & Vacuum Pumps in Every Variety

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THE A.S. CAMERON STEAM PUMP WORKS

Foot of East 23d Street, New York.



SELF-CONTAINED STEAM ENGINES

Stationary or
Semi-Portable.

High Standard Maintained.
Prices Greatly Reduced.

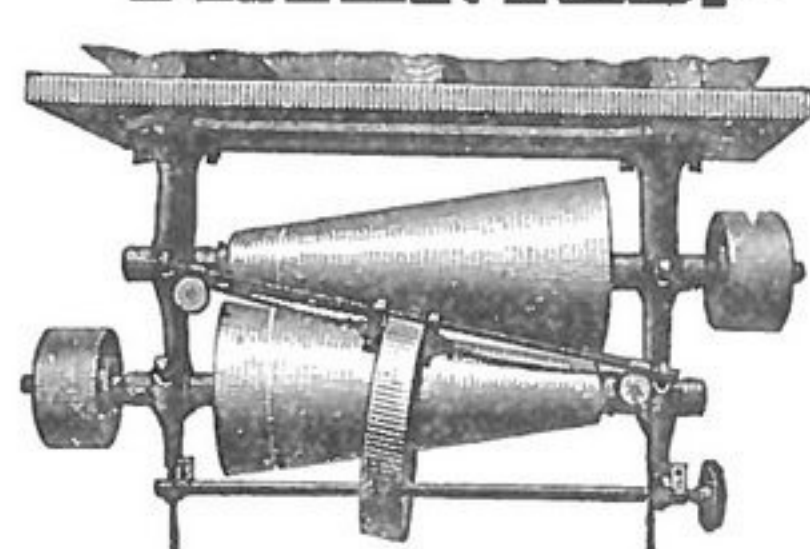
WRITE FOR NEW ILLUSTRATED
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**Chandler & Taylor Co.,
Indianapolis, Ind.**

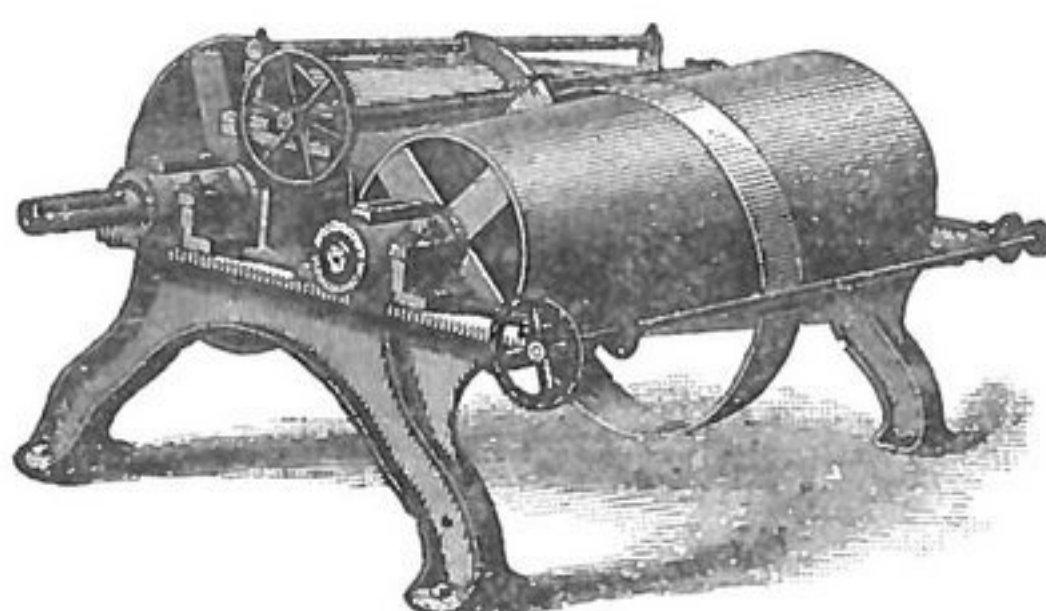
Engines, Saw-Mills and Drain Tile
Machinery a Specialty.

THE EVANS FRICTION CONE & FRICTIONAL GEARING

"PATENTED."



This cut represents a set of hanging cone pulleys. This pattern is intended for that class of machinery that stops and starts at the same speed, and at the same time be able to change the speed more or less while running. These cones are also fitted with a governor where a steady motion is required and the initial power is



fluctuating. All sizes made from 1/2 Horse Power to 50 Horse Power. **SEND FOR ILLUSTRATED CATALOGUE.**

EVANS FRICTION CONE CO., 85, Water St., BOSTON.





OFFICE OF THE MILLING WORLD,
BUFFALO, N. Y., May 3, 1890.

Friday of last week was a day of dull and easier markets, on better weather and lower cable reports. In New York April wheat closed at 96c., with receipts 93,527, exports 39,103, and options 1,856,000 bushels. April corn closed at 40½c., with receipts 239,734, exports 440,066, and options 696,009 bushels. April oats closed at 33½c., with receipts 160,790, exports 65,164, and options 50,000 bushels. Wheat flour was dull and unchanged on trade brands, with concessions to make sales. Receipts were 11,550 sacks and 24,713 barrels, and exports 17,913 sacks and 2,407 barrels. The minor lines were featureless.

Saturday brought exceedingly dull and featureless markets. April wheat closed at 97c., with receipts 113,655, exports 3,998, and options 1,276,000 bushels. April corn was not quoted, and May corn closed at 39¾c., with receipts 222,482, exports 55,644, and options 360,000 bushels. April oats closed at 33½c., with receipts 110,339, exports 93,039, and options 89,000 bushels. Wheat flour was duller than ever. Receipts included 8,938 sacks and 22,661 barrels, and exports 1,000 sacks and 2,060 barrels. All the other lines were quiet.

Monday was the dullest day for a month. April wheat closed at 97½c., with receipts 84,163, exports 114,023, and options 1,030,000 bushels. May corn closed at 39½c., with receipts 501,808, exports 603,313, and options 446,000 bushels. May oats closed at 30¾c., with receipts 193,362, and exports 70,202. Wheat flour was steadily held. Receipts were 12,153 sacks and 36,736 barrels, and exports 10,910 sacks and 5,421 barrels. The minor lines were quiet. The visible supply in the United States and Canada was:

	1890. April 26.	1889. April 27.	1888. April 28.
Wheat.....	23,982,168	26,042,209	32,473,243
Corn.....	14,326,030	12,526,190	8,530,311
Oats.....	3,612,652	6,700,499	3,738,894
Rye.....	1,027,383	1,462,226	305,856
Barley.....	986,178	854,968	926,805

Tuesday brought still duller and somewhat lower markets, led downward by corn, on larger western movement and the drop in silver. April corn closed at 96½c., with receipts 114,783, exports 80,685, and options 1,800,000 bushels. Illinois State Bureau reports indicated no improvement in wheat conditions. May corn closed at 39½c., with receipts 380,773, exports 348,851, and options 1,760,000 bushels. May oats closed at 30¾c., with receipts 133,335, exports 6,617, and options 290,000 bushels. Wheat flour was dull and irregular, with receipts 4,511 sacks and 34,729 barrels, and exports 53,243 sacks and 39,242 barrels. The minor lines were unchanged and featureless. The conditions all along the wheat line favored the bulls, but the bears seemed to be the only dealers who dared to move a hand to influence prices. In spite of continued bad winter wheat reports, and of estimates of only a half-average area sowed to spring wheat in South Dakota, the bears continued to pour in bogus reports of lush conditions without end or measure. Conservative observers state that, while a slight retrogression in wheat prices may be forced in the near future, it can be only temporary, as the recent advance was made on a sound basis, and prices must go up again.

The following shows the amount of wheat and flour together with the amount of corn on passage to United Kingdom, for ports of call or direct ports for the weeks mentioned:

	1890. April 29.	1889. April 30.
Wheat and flour, qrs....	2,479,000	1,857,000
Corn, qrs.....	734,000	298,000

The following shows the amount of wheat and corn on passage to the Continent for the past week and for the same week last year:

	1890. April 29.	1889. April 30.
Wheat, qrs.....	696,000	346,000
Corn, qrs.....	532,000	226,000

	Qrs.
Shipments India wheat to U. K.....	45,000
do do Continent..	2,500

The imports into the United Kingdom for the past week, the previous week and for the same week in previous year were as follows:

	1890. April 29.	1890. April 22.	1889. April 30.
Wheat, qrs.....	348,000	167,000	238,000
Corn, qrs.....	125,000	166,000	125,000
Flour, bbls.....	235,000	178,000	167,000

Wednesday brought worse reports from the wheat-growing States which, with lighter receipts and covering by shorts, sent wheat up slightly. According to one authority winter wheat lost 10 per cent. in condition during the month of April. May wheat closed at 96½c., against 83½c. a year ago, with receipts 95,799, exports 110,508, and options 4,000,000 bushels. May corn closed 39¾c., receipts 424,729, exports 462,737, and options 1,640,000 bushels. May oats closed at 31¾c., with receipts 166,915, exports 18,629, and options 435,000 bushels. Rye grain was neglected at 59c. for No. 2 western and Canada, 60c. for No. 1 State delivered and 57½c. on track. Barley was nominally unchanged at the following rates: Two-rowed State 48; six-rowed, 63@65c; extra No. 2 Canada 66@68c; No. 2 do, 70@72c. Malt was slack at old quotations, without reported sales. Quotations: 85@90c for city-made Canada, 80@85c for country do, 75@78c for six-rowed and 68@70c for two-rowed asked. Mill feed was unchanged, at 85c in lines.

Wheat flour was irregular and in buyers' favor generally, except on straight winters for the trade and clear springs for export, both of these lines being steady and active. Receipts included 8,700 sacks and 29,816 barrels, and exports 18,099 sacks and 30,411 barrels. Rye flour was dull at \$3.10@3.35. Corn products were active and steady with improved corn. Sales were liberal at the following quotations: Coarse meal 80@82c; fine yellow 90@95c; fine white 95@98c; Southern 85c@\$1.40 for common to fancy; Southern and Western in barrels \$2.35@2.45; yellow granulated \$2.60@2.65; white do \$2.70@2.75; flour \$3.00@3.25.

Thursday was a day of more activity and excitement in the wheat markets. In New York May wheat closed at 98¾c., against 96½c. on the preceding day. Receipts were 10,000, exports 214,000, spot sales 8,000, and options 12,680,000 bushels. The bears were unable to stem the tide of unfavorable reports that poured in from all the wheat states of the winter belt, while the bulls, curiously enough, refrained from making the most of the elements that favored them. May corn closed at 40½c., with receipts 65,000, exports 52,000, spot sales 121,000, and options 2,160,000 bushels. May oats closed at 32c., with receipts 124,000, spot sales 137,000, and options 730,000 bushels. Wheat flour was firmer, with receipts 16,000 packages and sales 26,000 barrels. Sales were made at the following prices: Low extra \$2.40@2.90; city mills \$4.25@4.50; city mills patents \$5.00@5.75; winter wheat low grades \$2.40@2.90; fair to fancy \$3.10@4.65; patents \$4.50@5.25; Minnesota clear \$3.60@4.50; straights \$3.90@4.75; patents \$4.65@5.95; rye mixtures \$3.65@4.15; superfine \$2.25@2.85. The minor lines were unchanged and featureless. The output of the Minneapolis mills last week was 139,800 barrels, with sales two-thirds of the output.

BUFFALO MARKETS.

WHEAT—The markets here as well as as Chicago went up suddenly to-day, and after the early sales every one was afraid to buy. A sale of 40,000 bushels at 93½c c i f was made early, but by noon spot was held at 98½c and No. 1 Northern at 96c., and 96½c and 94c. c i f. respectively. No. 2 red winter sold at 95½c.

on track, and No. 1 white at 94¾@95c. No. 2 red in store is held at 96½c. CORN—Corn opened steady at yesterday's closing prices, but during the day went up a notch. Sales of No. 2 yellow were made 87c. in store, but at the close it was held at 37¾c. and 38¾c on track; No. 3 at 37¾c on track. No. 3 corn at 37¼c. on track, and 36½c. in store; and No. 3 do on track at 37c. A sale of 10,000 bushels of No. 2 white in store was reported. No. 4 yellow sold at 36c. OATS—Prices of oat4 also went up to-day. No. 2 white sold at 32¾c, and No 3 do at 31½c No 2 mixed sold at 30¾c. early, but closed at 30½c. RYE—Prices in this market are nominal at 56c. for No 2 in store BARLEY—There is a fair demand but few sales Quotations are 69@70c. for No 1 Canada and 65@68c for No. 2. No. 3 Canada was offered at 64@65c, but no takers OATMEAL—Akron,\$5.45; Western,\$5.25 per bbl.; rolled oats, in cases, 72 lbs., \$3.25. CORNMEAL—Coarse, 75@85c.; fine, 80@90c.; granulated, \$1.50 per cwt. MILLFEED—City-ground coarse winter, \$14.50@15.00 per ton; fine do. \$14.50@15.50; finished winter middlings, \$15.00@16.00; coarse spring do, \$14.00@14.50.

FLOUR MARKET.

Spring Wheat.	Winter Wheat.
Patents..... \$5.50@6.25	Patents ... \$4.75@5.50
Straight..... 4.50@5.25	Straight... 4.25@5.00
Bakers..... 3.50@4.25	Clear ... 3.75@4.20
Red Dog... 2.50@3.00	Low grades . 2.50@3.55

Retail prices 50c per bbl above these quotations.
Buckwheat flour \$1.40@1.75 per 100 100 lbs.

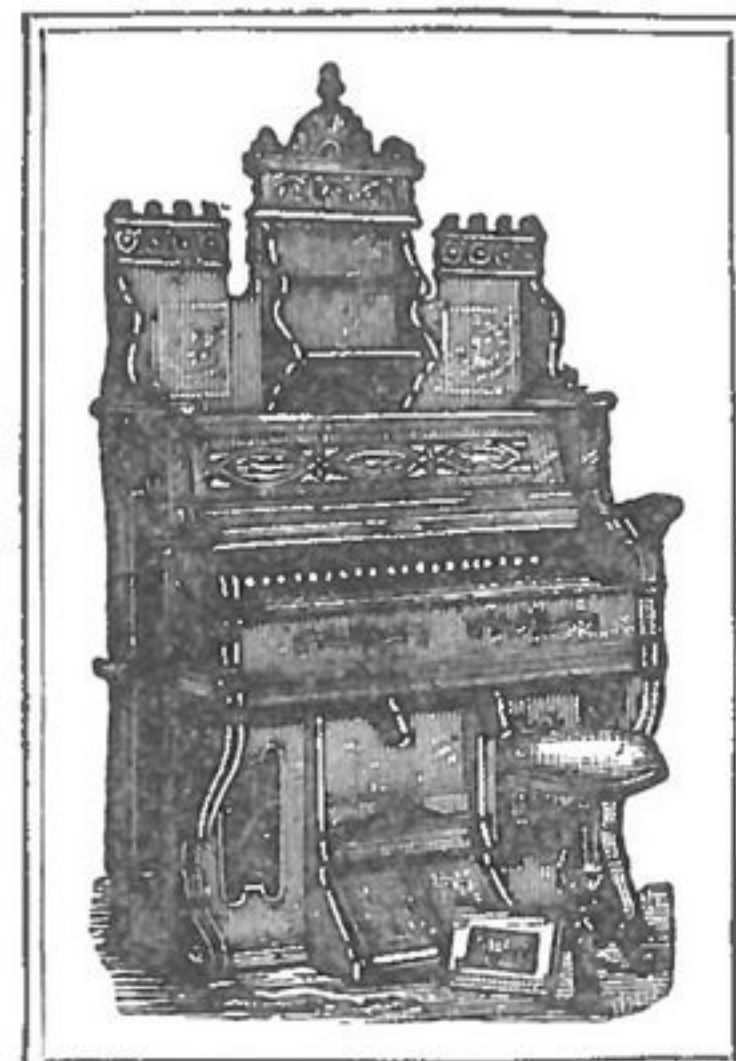
Sometimes
Corrugated Iron is
represented to be
"just as good as" our
Patent Edge Corrugation.
While this is
complimentary to
our material,
unfortunately it does
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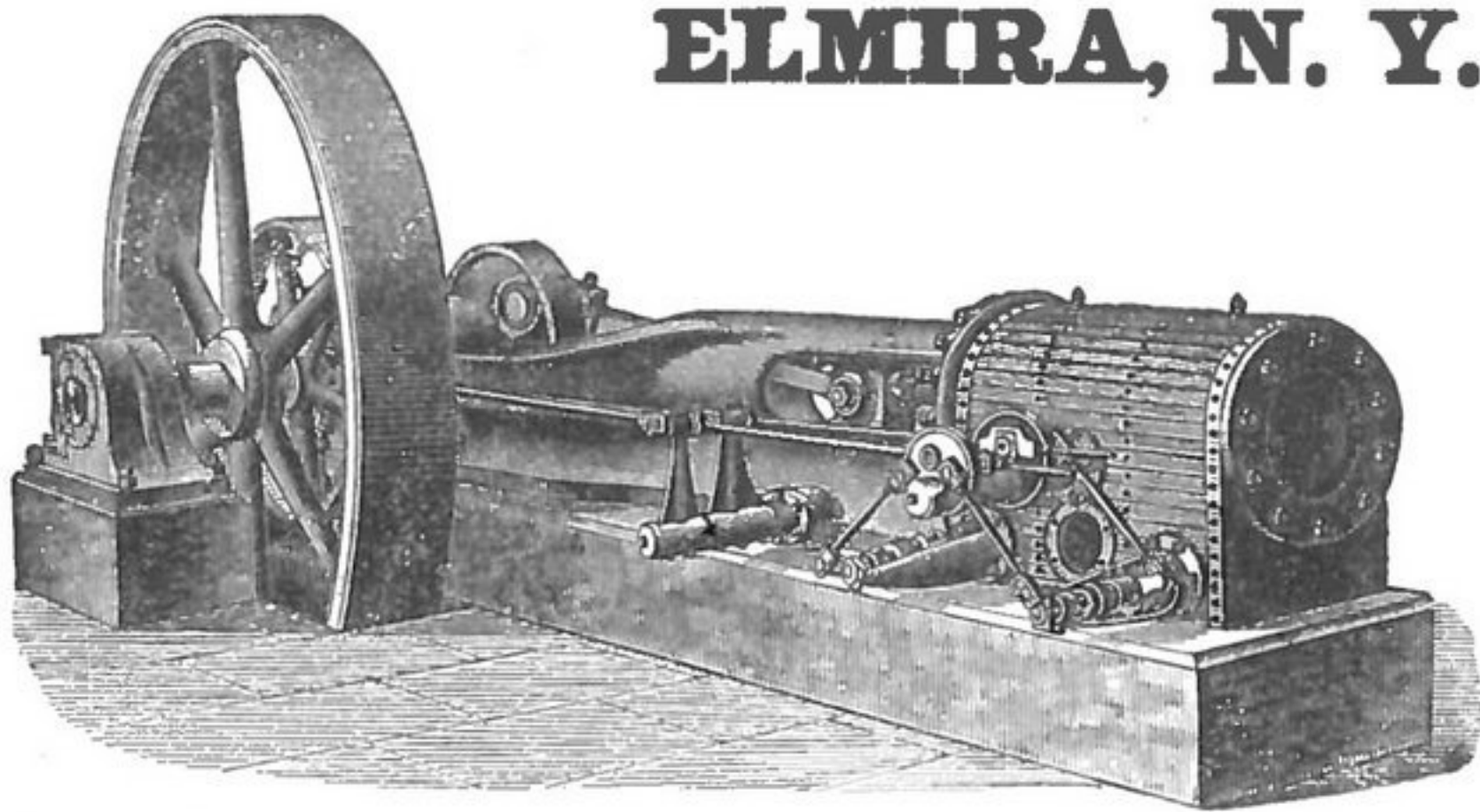


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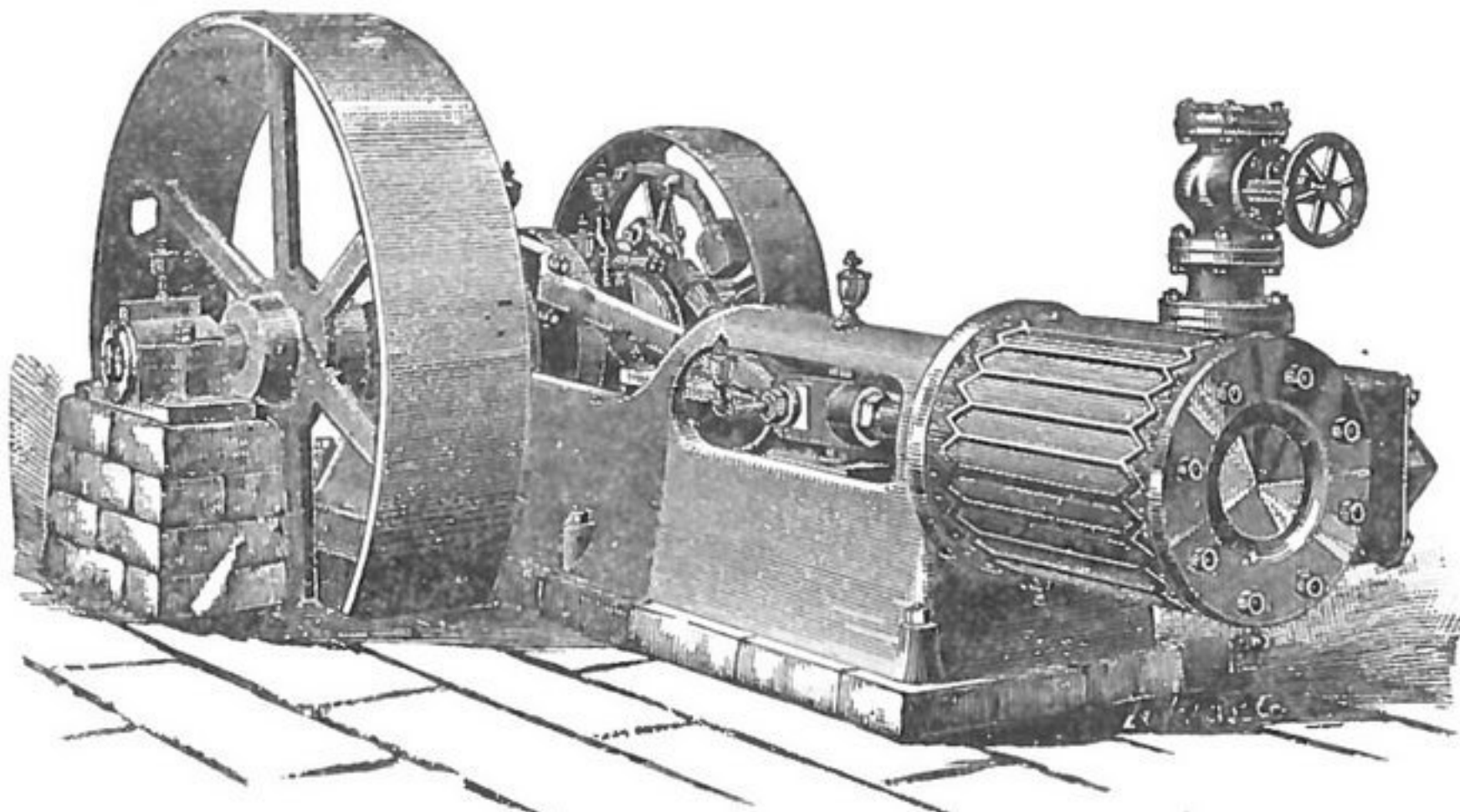
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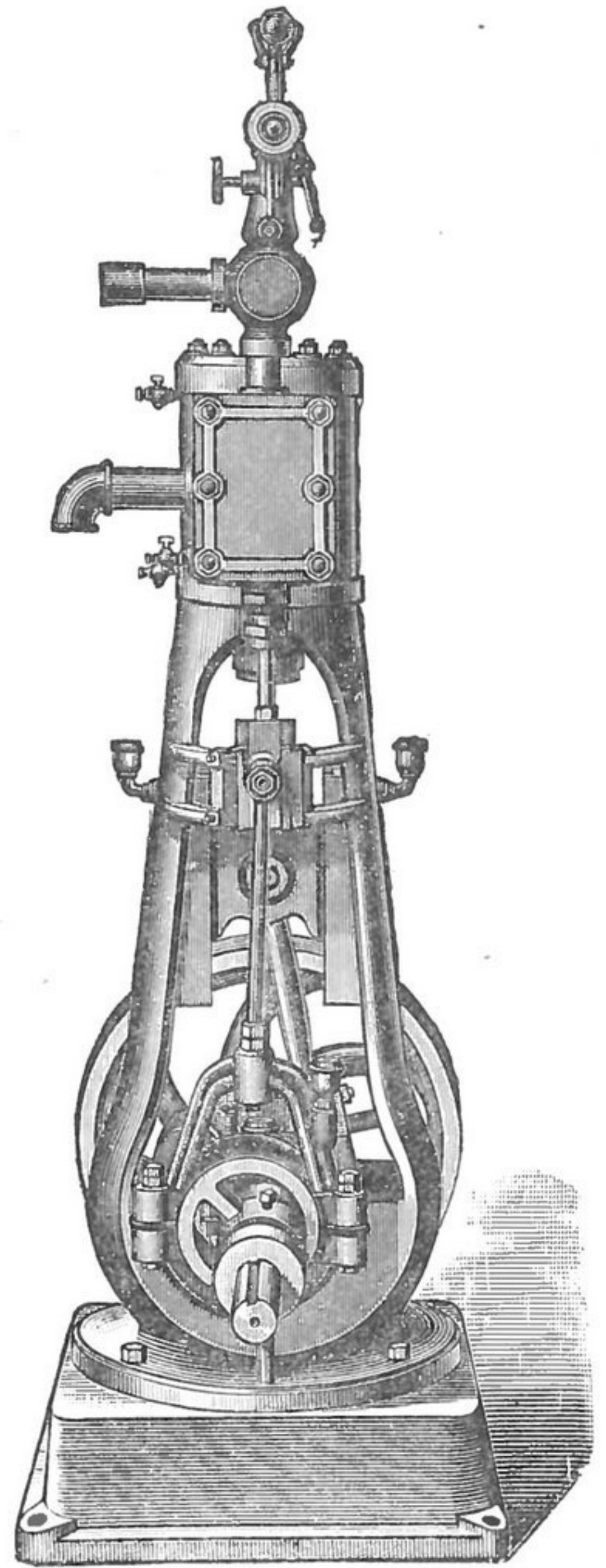
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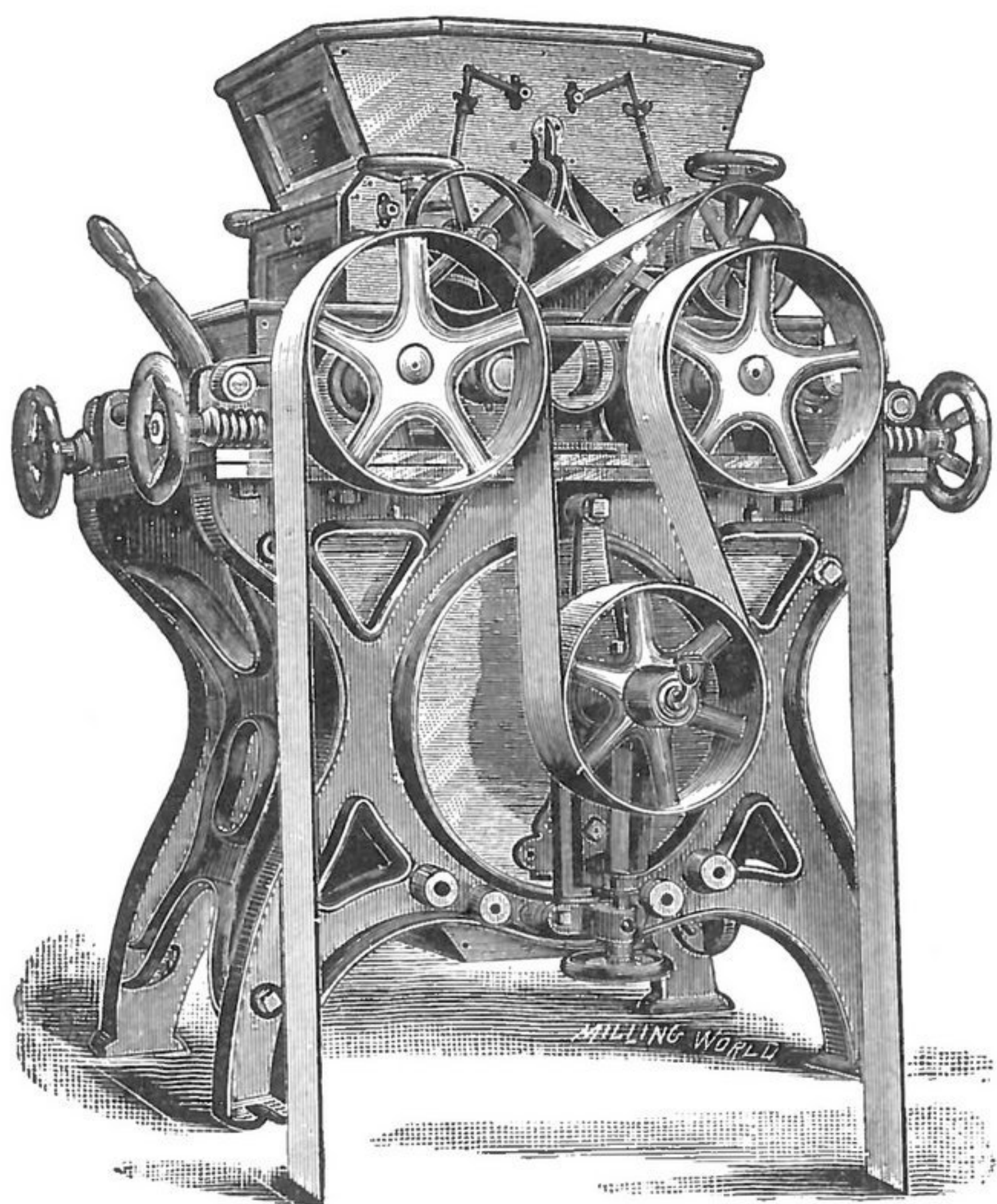


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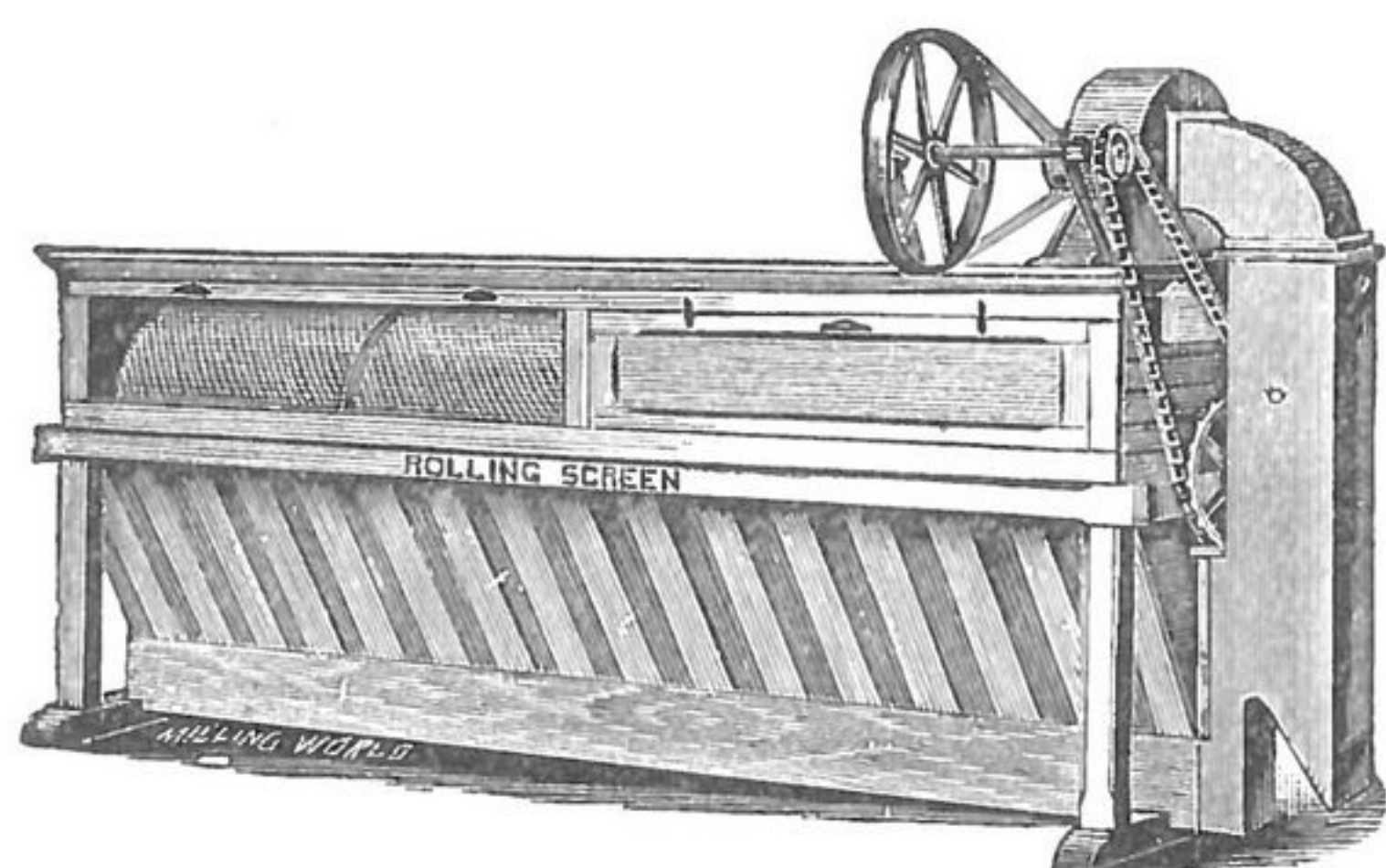
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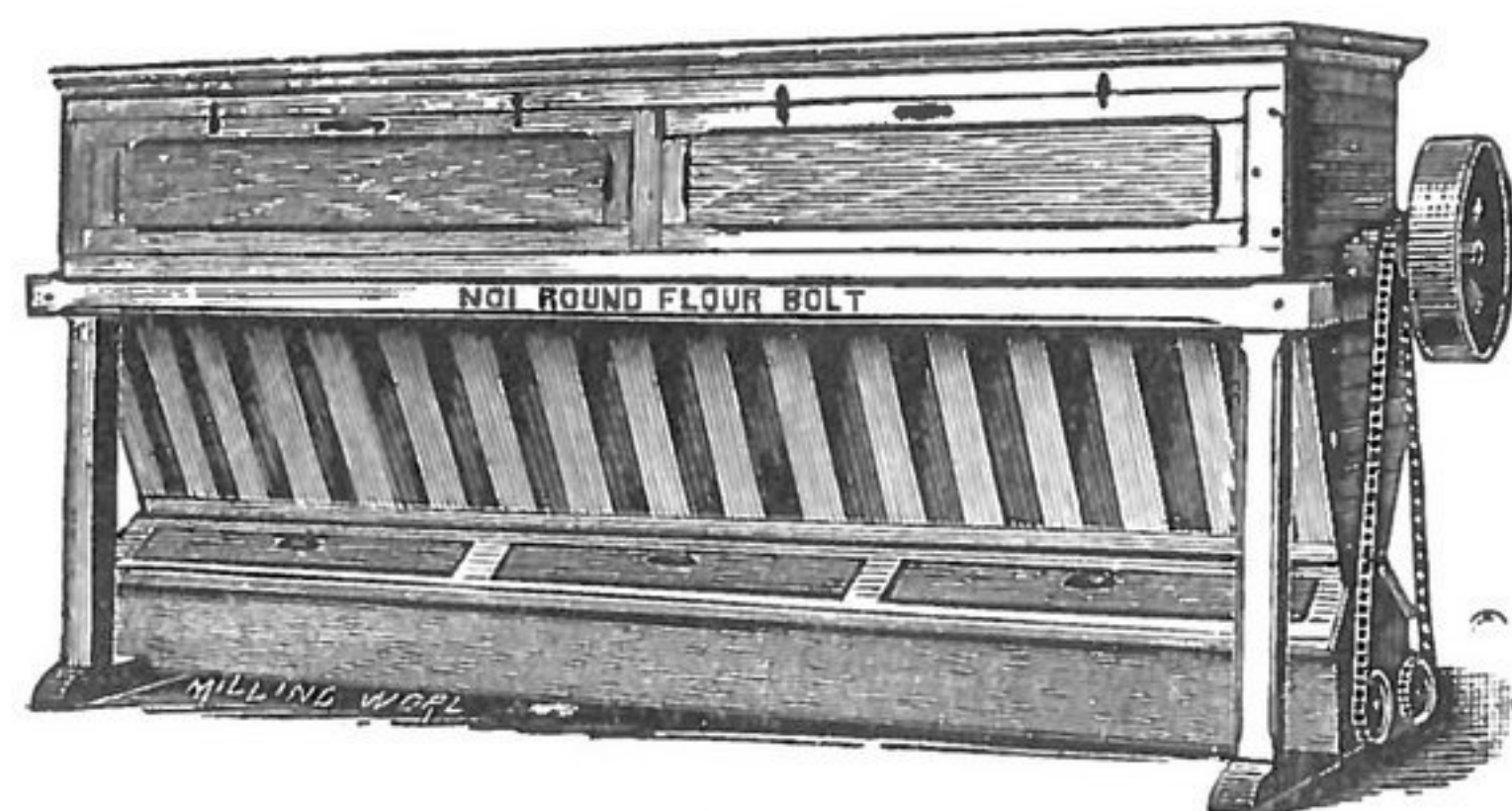
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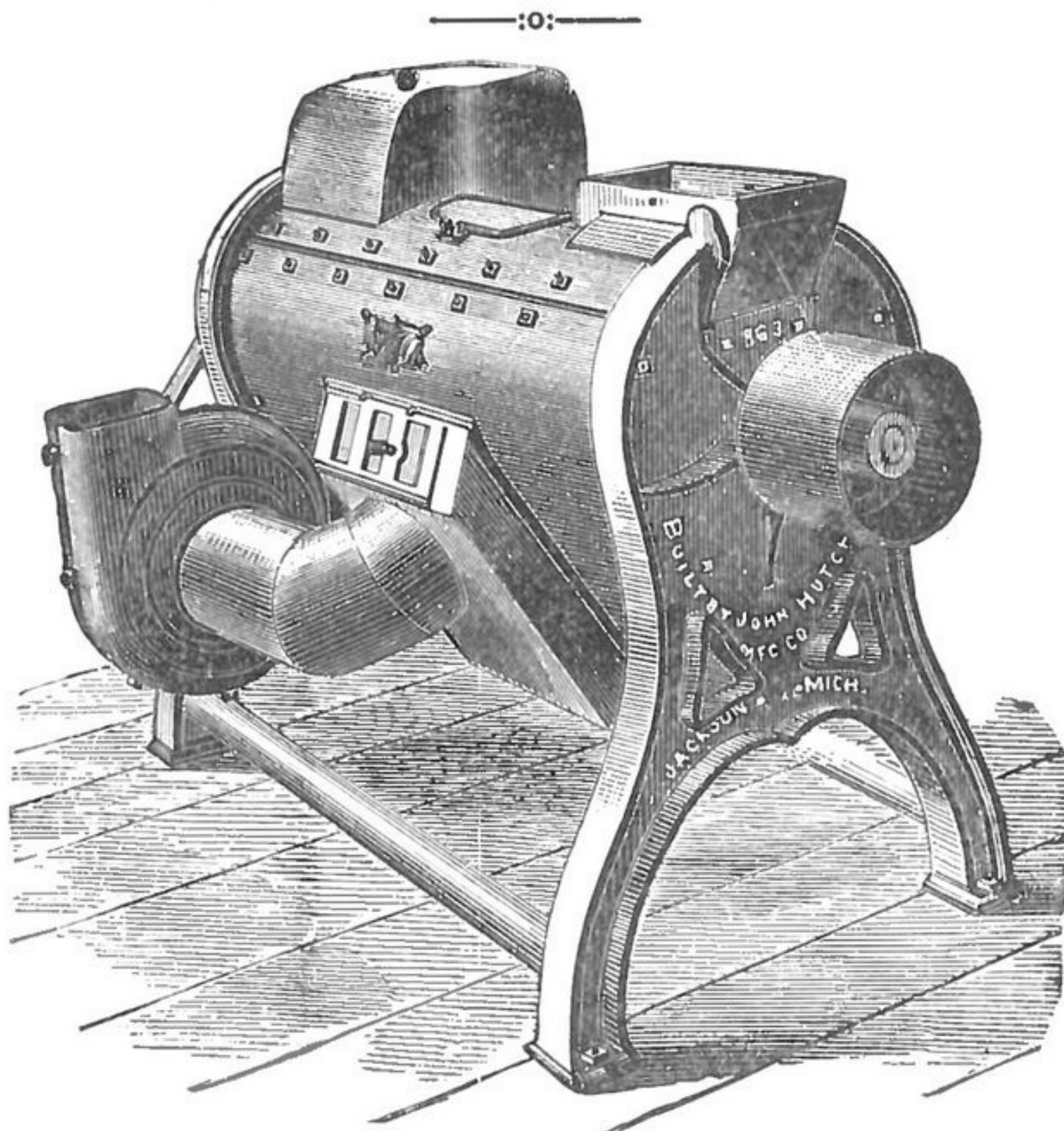


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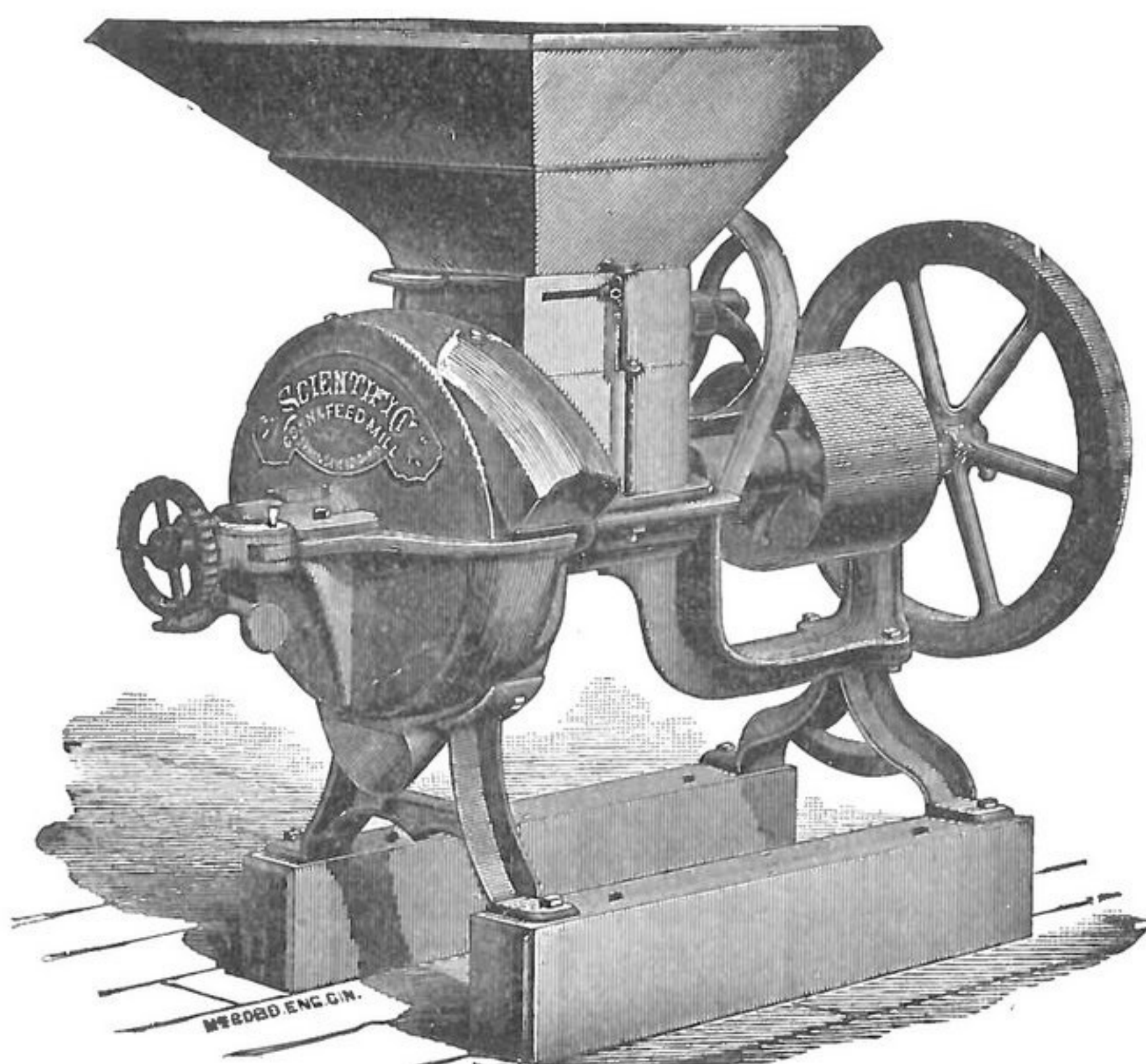
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